

# Marine Review

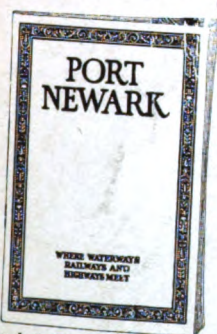
AUG 1 1927

The National Publication Covering the Business of  
Transportation by Water

August, 1927



## Saving from Two to Ten Days on Export or Coastwise Shipments



For a detailed description of the Port of Newark, its advantages of location and its superior facilities for freight handling, read this interesting book published by the City of Newark, a copy of which will be sent free upon request.

There is no lighterage, no rehandling at the Port of Newark! Loaded freight cars of five trunk line railroads can be shunted directly alongside ocean-going vessels. This direct exchange of cargoes between rail-and-ship often saves from two to ten days in the movement of export or coastwise shipments! That is why a steadily increasing volume of traffic is now being diverted to the Port of Newark in preference to more congested sections of New York Harbor.

More than sixty miles of belt-line railway are now in operation along the Port of Newark's two miles of dock. A thirty foot channel at low tide permits safe navigation and berthing of even the largest cargo vessels in all weathers. Modern fire-proof warehouses adjoining the waterfront provide millions of square feet of storage space and ideal facilities for re-distribution.

If you wish ample proof of the fact that Eastern shippers are becoming increasingly aware of these advantages, study a list of recent clearances from the Port of Newark and note not only the general increase in tonnage, but also the wide diversity of the cargoes offered for intercoastal carriers. If you are interested in the Port of Newark as a port of call, or as a possible terminal site, now is the time to get the facts. Write to

THOS. L. RAYMOND, Mayor — Newark, New Jersey

# The PORT of NEWARK



# The WHY of Linde Welding Service

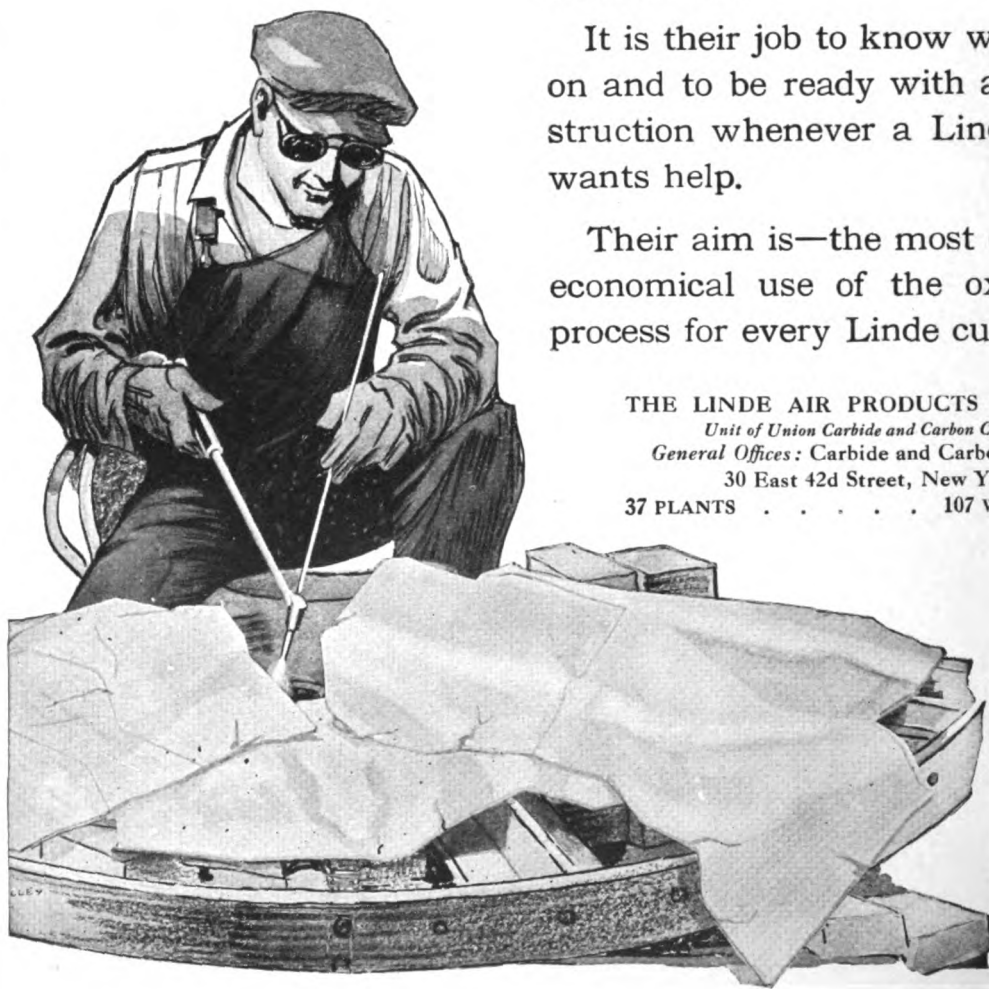
**I**N A FIELD that is developing and has developed as rapidly as that of oxy-acetylene welding and cutting, it is impossible for even the most alert welder or engineer to keep abreast of new developments.

That is one of the reasons for Linde's service staff.

It is their job to know what is going on and to be ready with advice or instruction whenever a Linde customer wants help.

Their aim is—the most efficient and economical use of the oxy-acetylene process for every Linde customer.

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*Unit of Union Carbide and Carbon Company*  
General Offices: Carbide and Carbon Building  
30 East 42d Street, New York  
37 PLANTS . . . . . 107 WAREHOUSES



## LINDE OXYGEN

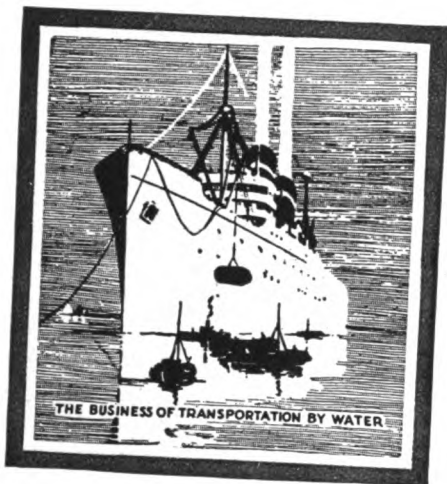
# Marine Review

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Transportation by Water

CLEVELAND

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MARINE REVIEW—August, 1927

# Our Floating "Trouble-Shooters"

## Range from Duluth to Buffalo

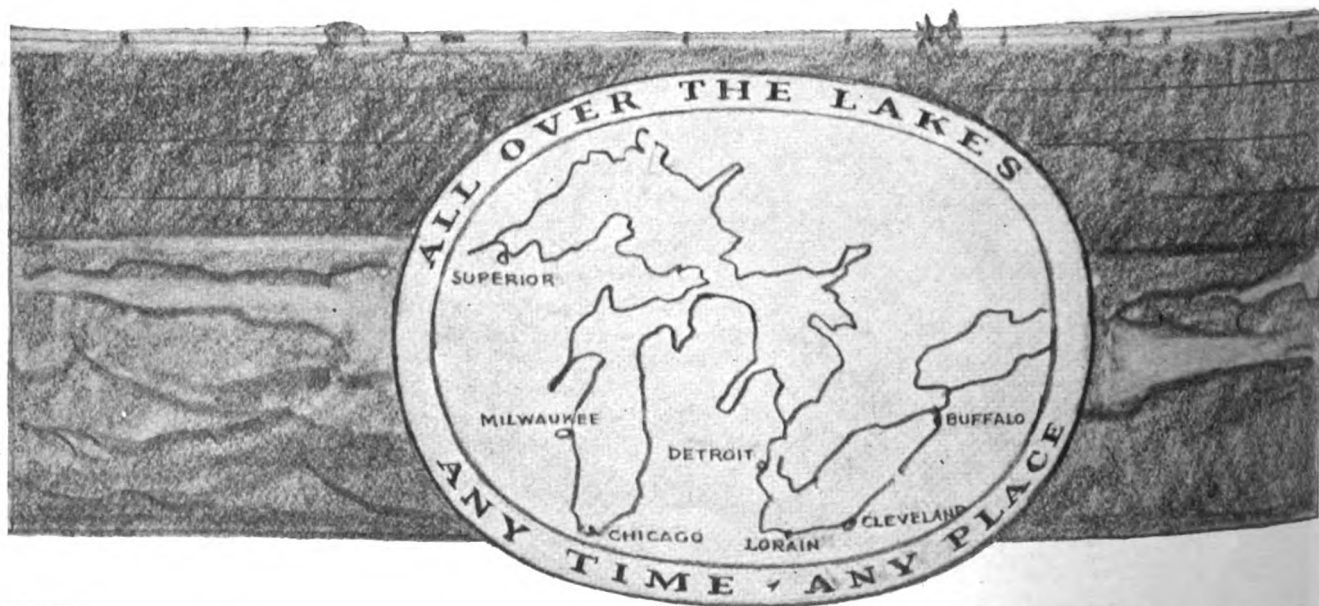
NO lake boat is ever out of reach of *American* floating equipment. At every one of our yards are men trained to quick action day or night—with the tugs, launches, barges and floating cranes which long experience has shown are needed.

Back of this service afloat is our unequalled service ashore. Yards at seven strategic points—dry docks, forge, foundry and

machine shops. Everything required to build ships and repair them. No job too big or too little.

Such equipment and service saves your ships the time which is money. Often it means one trip more per season. It is economy to insist—as many ship operators do—that all your repair jobs be done at the nearest *American* yard.

*Note the location of our yards and shops—all over the Lakes—as listed below.*



# *The* AMERICAN

CLEVELAND  
American Ship  
Building Co.

LORAIN  
American Ship  
Building Co.

DETROIT  
Detroit Ship  
Building Co.

BUFFALO  
Buffalo Dry Dock  
Company





U. S. S. Arizona Passing Through Panama Canal Locks on Way to Western Waters After Manoeuvres

## Naval Parity Is Impossible Without a Merchant Marine

**L**IMITATION of armaments with its attendant lessening of the burden of taxation meets with universal approval. Presumably Great Britain, as well as Japan and the United States, is most anxious to come to an agreement on the question of limiting the number of cruisers or she would not have indicated her readiness to participate in the tri-power conference now underway at Geneva. The apparent reason for the difficulty in coming to an agreement seems to be that the representatives of Great Britain have fixed ideas as to her own needs in this class of vessel. This amount is so large that in order to meet it and to maintain parity the United States would have to carry out a building program far beyond what it considers necessary; that is, if we are in fact to have any real limitation.

Public opinion in the United States is we believe unalterably opposed to less than parity with Great Britain in all classes of naval vessels. A responsible spokesman for the British point of view was quoted in the *New York Times* as follows:

"Now as to cruisers. The United States could lose all her cruisers and still carry on in war conditions, whereas we should starve in a few weeks.

In considering our cruiser requirements we are really considering war conditions.

"Our sea streets are longer than America's; we need more policemen to guard them. But defensive cruisers against raiders can be limited in size. We have proposed a limit for them. We have made a sharp distinction in our proposals between heavy, offensive cruisers and light, defensive ones, and we are prepared to limit the heavier ones to a very low figure.

"We have agreed to the parity principle throughout the conference. We have agreed that America ought to have the right to build as many cruisers as we. They apparently do not want to; that is where the trouble lies."

And here is another angle, from the same source, of the way our British friends view this subject:

"But the Admiralty's present contention has considerable virtue. It is no answer to the American proposal to build twenty-five 10,000-ton cruisers to say that we are at liberty to build fifty 5000-tonners if we wish. In an actual war that paper balance would be absolutely unreal."

The British criticize the American attitude in regard to individual cruiser tonnage claiming that heavier cruisers are chiefly weapons of offense

to be used with the battle fleet while the light cruisers which they want are defensive weapons for use chiefly in guarding Great Britain's wide flung trade routes and that this class of vessel is therefore her greatest need and that a cut in naval building should be in the larger and costlier vessels. They do not for a moment admit that the United States has a sea trade to protect and they insist that we are self-supporting in war time. The implication here is that we do not need an overseas merchant marine and that we are never likely to have one. We cannot accept this dictum, and sooner or later we must have a merchant marine comparable to our position in the world both for national prosperity and security, since it is not possible to live by ourselves apart from the rest of the world. Our vital need of a merchant marine could not have been more clearly demonstrated than it was during the last war.

The American compromise proposal

of a total of 400,000 tons in cruisers, 18 of them to be of 10,000 tons and the remainder in 7500 tons or less is fair to Great Britain and could be accepted without endangering in any way her just interests. Under this arrangement the United States having 8 of this size authorized would have to build 10 more. Also in addition to the 10 cruisers of 7500 tons each which she now possesses the United States would have to build 20 more of this tonnage bringing the total cruiser fleet up to 48.

Purely naval parity in cruisers is far from actual parity when the number of large fast merchant passenger ships which Great Britain possesses is taken into account. Only three vessels of this class have been contracted for in the United States since the war. There is no immediate prospect of private initiative undertaking the building of vessels of this class. If we are to continue to maintain any link in the overseas passenger liner and express cargo trade it is

essential that something be done at once about replacements.

The least that could be done would be to authorize the immediate reconditioning of the AGAMEMNON and Mr. VERNON as recommended after a thorough investigation by competent experts. Action should also be taken to provide at least two new large fast transatlantic liners to be used with the LEVIATHAN to build up and to consolidate the very definite position now held by the United States lines in the service to Europe. Such a line could, with proper support similar to that given by all other governments, be made to pay so that it could be placed under private operation.

Without replacements and additions to our existing overseas marine it is bound to disappear from the seas and any idea of naval parity will mean no more in actuality than a scrap of paper or dependence on the good will of those nations which are powerful on the water not only in naval vessels but in merchant ships.

# Additional Vessels are to be Dieselized

SINCE the fall of 1924 the shipping board through the maintenance and repair department of the Merchant Fleet Corp. has steadily pursued its original program of converting 12 laid up steam freighters to diesel drive. This work has been carried out under the direction of Capt. R. D. Gatewood, manager of maintenance and repair. It is natural that a great deal of delay had to be endured and many difficulties had to be overcome in carrying out this ambitious program. In the first place it was the object of the board to foster the art of diesel engine building in the United States and it was therefore necessary to distribute the orders for engines to as many responsible concerns as possible.

After nearly three years since the inception of this project it may be well to pause and to review for a moment its present status. In an accompanying table are listed the names of the vessels chosen for conversion also the make of engine installed, the yard where the conversion was carried out and the date at which the sea trial of the completed vessel was held. At the time of this writing seven vessels have completed their sea-trials and are now engaged in regular long voyage services. One vessel the CITY OF DALHART is having her trial trip and on the successful issue of such trial will immediately go into service.

Of the four remaining vessels, three are to be fitted with double acting engines built respectively by Hooven

Owen Rentschler Co., McIntosh & Seymour and New London Ship & Engine Co. In the table the double acting engine is designated by the initials D. A. The first two of the engines have been delivered and are now being installed in their respective hulls at the Fore River plant of the Bethlehem Shipbuilding Corp. and at the Tietjen and Lang yard, Hoboken, of the Todd Shipyards Corp. One of these vessels it is expected will have her sea trial about Sept. 30 and the other about Nov. 15. The third double acting engine completed its thirty-day non-stop run on July 17. It is presumably ready for delivery now and the contract for its installation in the S. S. WILLSCOX will shortly be awarded.

So much for the status of the 12 first shipping board vessels. Reports received by Captain Gatewood on the performance of those vessels already in service indicates that they are giving every satisfaction and are economical in fuel consumption. The first of the converted vessels the TAMPA, for instance, was commissioned Nov. 8, 1926, sailed immediately on a voyage to Germany and Belgium and made a record voyage for vessels of her class. After that late in January she entered the Atlantic coast-South American service. Her engine operated most efficiently and developed a steady average power sufficient to give the vessel a service speed of 11.8 knots.

(Continued on Page 50)

Shipping Board Diesel Conversion Program				
Name of Vessel	Yard	Engine	Date of Sea Trial	
TAMPA .....	Newport News S. B. & D. D. Co.	Worthington D. A.	Nov. 8, 1926	
UNICOL .....	Newport News S. B. & D. D. Co.	Worthington D. A.	Dec. 12, 1927	
WEST HONAKER .....	Fore River Plant, Bethlehem S. B. Corp.	McIntosh & Seymour, S. A.	Nov. 29, 1926	
WEST CUSSETA .....	Fore River Plant, Bethlehem S. B. Corp.	McIntosh & Seymour, S. A.	Jan. 14, 1927	
CROWN CITY .....	Fore River Plant, Bethlehem S. B. Corp.	McIntosh & Seymour, S. A.	Feb. 19, 1927	
SAWOKLA .....	Newport News S. B. & D. D. Co.	Busch Sulzer S. A.	Mar. 12, 1927	
CITY OF RAYVILLE .....	Newport News S. B. & D. D. Co.	Busch Sulzer S. A.	April 27, 1927	
CITY OF DALHART .....	Newport News S. B. & D. D. Co.	Busch Sulzer S. A.	Abt. July 25, 1927	
YOMACHICHI .....	Newport News S. B. & D. D. Co.	Busch Sulzer S. A.	Abt. Oct. 10, 1927	
WEST GRAMA .....	Fore River Plant, Bethlehem S. B. Corp.	McIntosh & Seymour, D. A.	Abt. Nov. 15, 1927	
SEMINOLE .....	Tietjen & Lang, Hoboken	Hooven, Owens & Rentschler D. A.	Abt. Sept. 30, 1927	
WILLSCOX .....	Todd Shipyards Corp.	New London Ship & Engine Co. D. A.	30 day test completed July 17, 1927	
	Contract Not Awarded			



# Powerful Double Acting Diesel Completes 30-Day Non-Stop Run

**T**HE large double acting two cycle engine of M. A. N. type, built by the New London Ship & Engine Co. for the United States shipping board, successfully completed a non-stop 30-day test on July 17. As a matter of fact this engine ran, with the exception of the momentary stop required to reverse, continuously from 8:46 a. m. June 17 until 10:02 p. m. July 18; that is 31 days, 13 hours and 16 minutes. The shipping board did not officially start the 30-day run until the evening of June 17.

During the 30-day test the average indicated horsepower developed was 4990 and the average brake horsepower was 3680 at 115 revolutions per minute. After the 30-day test a 6-hour ten per cent over load trial was held at which the brake horsepower was 4035 at 115 revolutions per minute. This was followed by a 4 hour 15 per cent over load test at which the average brake horsepower was 4249 at 121 revolutions per minute. Tests were

then held for 6, 4, 2 and 1 hour at 75 per cent, 50 per cent, 25 per cent, of full load and full speed astern. The average horsepower and revolutions corresponding were 2761 at 105; 1845 at 91; 925 at 73. The revolutions at full speed astern were 111, the brake horsepower was not determined.

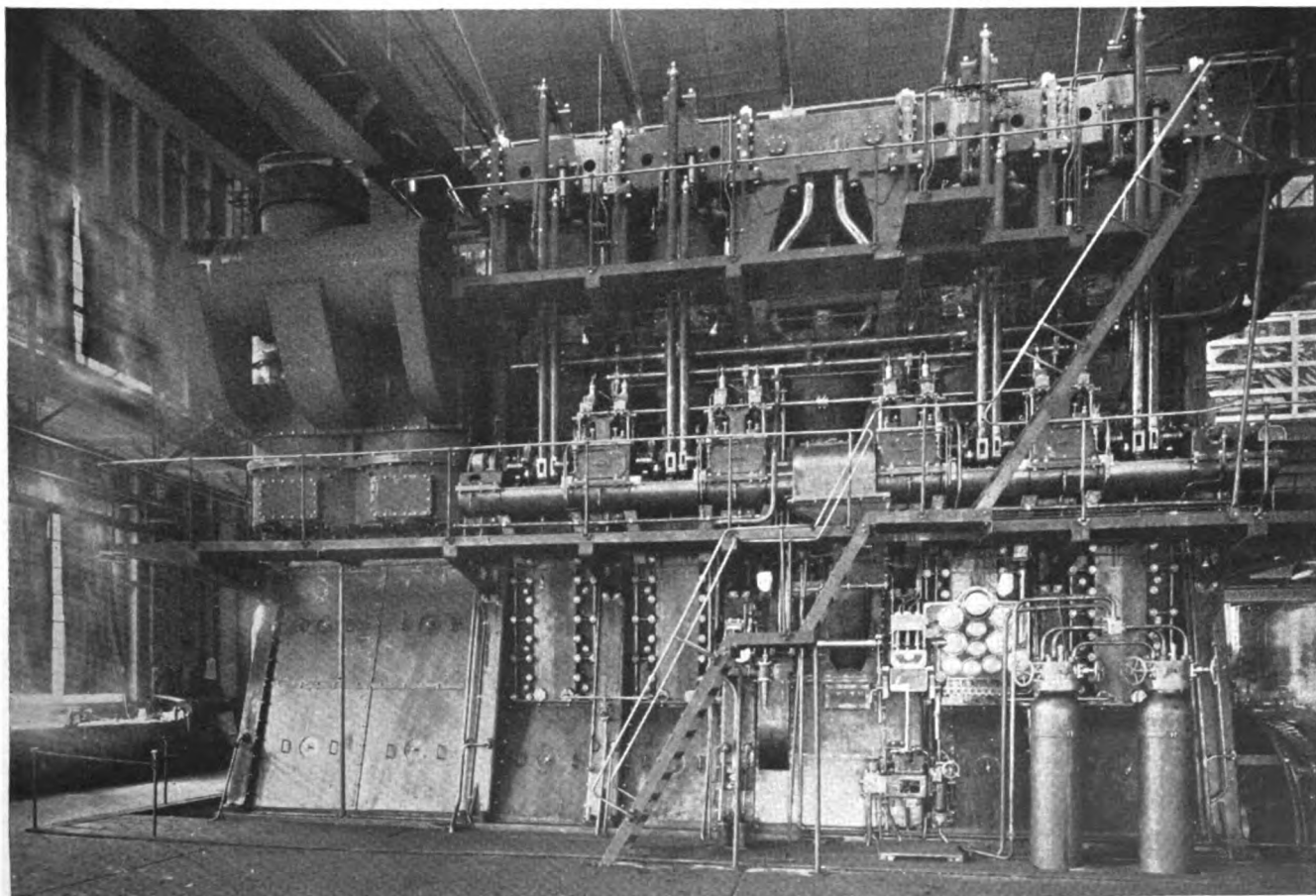
## More Power in Less Space

With the advent of the double acting diesel engine for marine service a progressive step has taken place in the application of the internal combustion engine for sea going ships of all types and sizes. Ship owners, who are at all conversant with the increasing success of motor ships, have doubtless realized that sooner or later they would utilize the diesel engine in their fleets. Some have possibly been deterred from taking this action by the initial investment required, others through lack of information on the subject, and still others by the belief that the large slow speed diesels were passing through an evolutionary stage in type

and design. This latter thought has proved correct, but progress has been relatively slow, covering as it has, a period of over a dozen years.

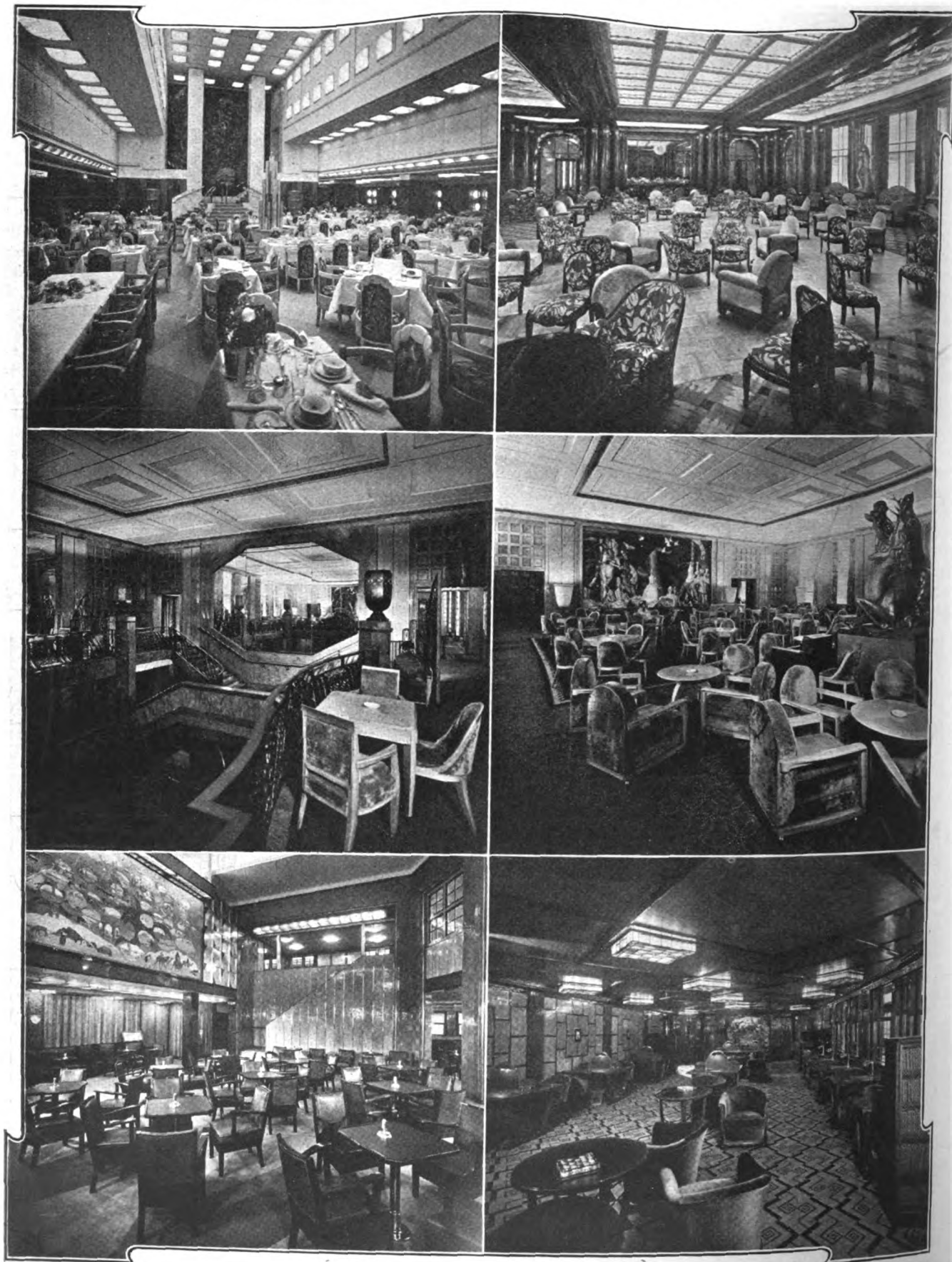
It is well known that the single acting diesel engine has operated on the high seas for many years with great satisfaction to its owners. These engines have thoroughly proved the reliable operation of motorships and have effected large annual savings. Competitive conditions however, demanded ships of greater earning power which in turn means more dead-weight tonnage and cubic capacity, when considering hulls of similar characteristics. The attainment of additional carrying capacity necessitated a reduction in the engine room length, as well as in the total weight of the propulsive machinery. These advantages could only be obtained, to the highest degree, by the introduction and application of the double acting principle.

The engine illustrated was built by  
(Continued on Page 52)



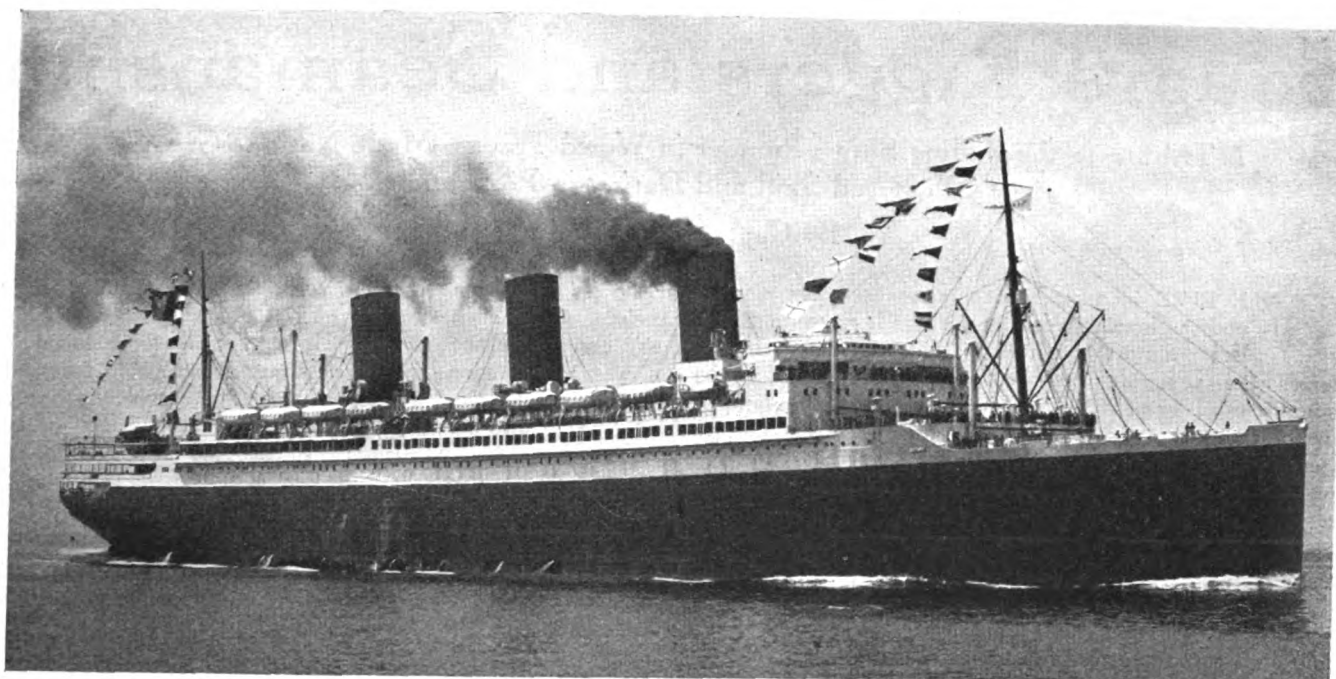
DOUBLE ACTING M. A. N. TYPE 2-CYCLE DIESEL ENGINE BUILT BY NEW LONDON SHIP & ENGINE CO. FOR THE SHIPPING BOARD, COMPLETED SUCCESSFULLY A 30-DAY NONSTOP RUN ON JULY 17—AVERAGE B. H. P. 3680 AT 115 R. P. M.

# Public Rooms on the Ile de France



INTERIOR VIEWS ILE DE FRANCE, RECENTLY COMPLETED FRENCH LINER AND SIXTH LARGEST VESSEL IN THE WORLD. SEE STORY IN JULY ISSUE OF MARINE REVIEW. UPPER LEFT—DINING SALON. UPPER RIGHT—GRAND SALON. CENTER LEFT—GRAND STAIRWAY FROM THE SOCIAL HALL. CENTER RIGHT—SOCIAL HALL. BOTTOM LEFT—SMOKING ROOM. BOTTOM RIGHT—WRITING ROOM. NO EXPENSE HAS BEEN SPARED TO MAKE THIS LINER COMFORTABLE AND BEAUTIFUL.





ILE DE FRANCE, LATEST FRENCH LINER, ARRIVED IN NEW YORK JUNE 28 ON HER MAIDEN VOYAGE

## Duplicate of S. S. California Ordered

**A**NNOUNCEMENT was made on July 5 by the International Mercantile Marine, that it has placed an order with the Newport News Shipbuilding & Dry Dock Co. for a second ship for its Panama Pacific line intercoastal service.

The new vessel will be identical with the CALIFORNIA, now under construction at Newport News for this service, and will have the same type of propulsion, turbo-electric drive. All her auxiliaries, as in the CALIFORNIA, will be electric.

The turbo-electric drive was developed by the United States navy, and is employed in several of its largest battleships, but hitherto has not been installed in a large commercial vessel. Absence of noise, flexibility of control and economy of operation are claimed for it.

It is expected that the new ship will be ready for delivery in the spring of 1929. The CALIFORNIA will be launched about Oct. 1, and will take her place in the New York-San Francisco service in January next, with the MONGOLIA and MANCHURIA.

With its new tonnage, the Panama Pacific line will have the two largest ships built under the American flag. Each will register about 22,000 tons gross, and will exceed 30,000 tons displacement. Their contract speed is to be 18 knots, and they will cut two days from the present length of the voyage between New York and California ports. Each will have a capacity for 800 passengers and 8000 tons

of freight. Special attention is given in their design to refrigerated cargo, and each will have 100,000 cubic feet of space suitable for the shipment of fruits and other perishable commodities.

Care will be taken to emphasize American craftsmanship in the fittings and decoration of both vessels. Their interior decorations will be adaptations of the Colonial style, as seen in old mansions in the Eastern states, and in specimens of rooms and furniture preserved in the American wing of the Metropolitan museum of art at New York.

Suggestions of Western development and the adventures of earlier days in the Caribbean sea, at the Isthmus and in California, will be conveyed by means of mural decorations of an historical character, showing the course of the Spanish discoverers, the buccaneers, the early English explorers of the Pacific, and the pioneers of early western days, with their ox teams and covered wagons.

### S. S. California Progress

Installation of joiner work on the CALIFORNIA, under construction at the Newport News Shipbuilding & Dry Dock Co. has now begun, marking a definite advance in the progress of work on the hull. Woodwork in the refrigerators was the first to be installed, consisting of heavy insulated walls of spruce, with gratings of ash. All the parts had previously been gotten out in the joiner shops.

No other American built ship has such large refrigerator space as the CALIFORNIA, in which no less than 100,000 cubic feet will be devoted to refrigerator cargo. Of this, 60,000 cubic feet will be cool air space, for the preservation of fresh fruits, and 40,000 feet will be devoted to frozen cargo. Temperature for the cool air space will be regulated by means of first passing air through a chamber containing brine coils, and then circulating it around the cargo by means of fans and vents.

Work on other woodwork, on the lower decks of the hull, will be carried on steadily until the ship is completed. Framework of the upper decks is now being finished and the plating of the lower decks is completed, except for riveting in certain parts.

The ship's electric-drive machinery, auxiliaries and boilers are all in place, and her rudder, which with its stock weighs 45 tons, is now in place. The rudder is of the balanced type, similar to that on the MAJESTIC, and is unusually large, to allow a margin of safety for steering at low speed in the Panama canal.

Inspection of the hull of the CALIFORNIA recently by officials of the International Mercantile Marine Co., for which the vessel is being built, resulted in expressions of satisfaction as to the progress and quality of the work on the ship. It is expected that rapid progress will now be made to completion.

# Square Riggers and Seamanship

A Tribute to the Sailing Ship—Pioneer in World Trade—Made Nations Great—  
Fostered Skill and Daring in Personnel

By Capt. Geo. S. Laing

**W**E LIVE in a mechanical age and the marine world of today has almost written finis across the voyaging records of the *square-rigged vessel*. Now and again one of the white-winged fleet may be seen poking her bowsprit into Nanaimo or New York, but the younger generation of seamen and navigators would almost have her apologize for mooring alongside of a modern steamship.

As one who served an apprenticeship on a square-rigger, and later trod the poop deck of a main skysail yarder, the writer desires to show that those same tall sparred vessels were not only the pioneer sea traders of the world, but that their beauty and their wild romantic voyaging held the essence of enchantment and adventure—an atmosphere almost unknown in ships propelled by machinery.

Trusting entirely to the vagaries of wind and wave the square-rigged windjammer dropped the land below the horizon for months at a time. A passage of 100 days was a common run between a North Atlantic port and Australia, while many vessels have

been five months on the passage from London to San Francisco. After such a lonely trip, with sky and water the only relief to the eye, was it a wonder that the land looked magical to the seafarer as it took shape on his vessel's bow?

Was such a long run a nightmare to deep-water men? No, solitude had its lining of grandeur. The varied experiences of battle with the elements and communion with the calm added thrills to an acrobatic and *qui vive* life. Moreover, the vessels themselves seemed to be imbued with a conscious life. This was symbolized in a work of art known as the figurehead, which might be a carved and painted image of a lady or a Rajah.

The mythical forms of mermaids and unicorns were the choice of some shipbuilders—but in all cases the inference seemed to bring out the thought that the ship was a living thing. Figureheads kept their peculiar vigil on the vessel's stem just below the bowsprit—scanning as it were the waste of waters ahead of the ship.

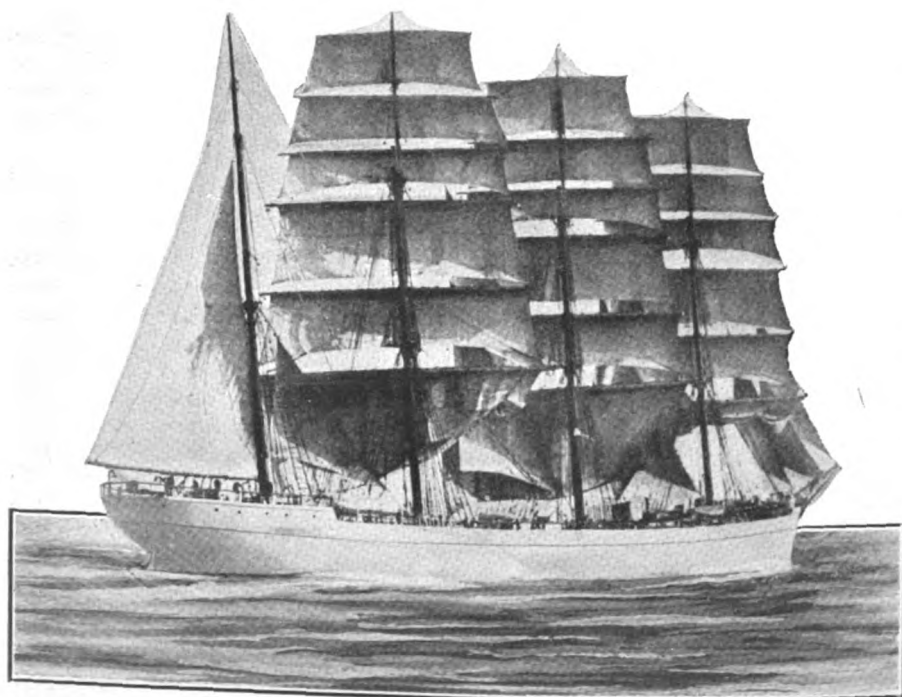
Meet one of the ocean craft as she sails towards the equator. The north east trade wind is well on her quarter. Every stitch is set from courses to skysails. Note how the yards are

trimmed with that slight difference in angle which would cause the upper sails to quiver in the weather leech should the wind jump out abeam. Her fore-and-aft canvas adds triangular figures to the spaces between the masts—which seem to tower into the clouds like the spires of a cathedral. Lurching to leeward in the puffs until the clew of the mainsail dips into the brine, then gradually rising to windward to the sound of groans from aloft where spars and running gear are straining—is she not a living thing—half bird and half fish?

Watch her as she flaps her wings to the dying trade wind and enters the doldrum area. A great calm takes the wrinkles out of Father Neptune's face and our good ship answers to the spell of Morpheus. She is asleep—becalmed. Look at her pose. The naval architect never copied those curves from a box-car. He was thinking of a swan or an albatross when he gave her that gentle rise from the waist to the knight-heads. The sheer towards the stern may be less pronounced but it is there until the full poop meets the taffrail. Glance at her comparatively slender waist—so low and near the water, and yet she can be trusted to rise on waves which literally tower above her rails and sheer poles. The rake of her spars and the roach or curve in the foot of the sails gives a geometrical balance to the picture.

The ocean resembles a huge mirror in which can be seen the reflection of her entire superstructure. A slight eddy plays around her fore-foot and rudder trunk—a mere pulsation to remind one that the mighty deep still retains the breath of life. But the ship is as motionless as the pyramids. As the tropical sun drops into the ocean, shafts of light fall on the vessel's white sails and she appears as a glittering gem resting on a field of blue silk.

In a dead calm everything is at peace—a man's voice or the noise of the ship's bell seem to intrude with undue harshness. The darkness of the equator steals over the scene and the firmament changes into a dome of pitch. Then here and there the stars appear like diamonds on the yard arms, between the sails, near the trucks and even on the bowsprit, for



A FOUR MASTED BARQUE



ship

their dazzling brightness reaches down to the ocean rim.

The man at the wheel and the second mate are in a brown study. Their panoramic minds run off to Antwerp or Calcutta where at some time they have had a frolic in the Black Cat or the Bristol. A first voyage boy strikes six bells. The rest of the watch are caulking decks—sleeping on the softest plank which they can find under the long boat. Whir—a cats-paw shows its ruffles in the distance. Then it skims along the glassy surface of the sea and actually kisses the lady figure-head. Such audacity prompts the lookout man to break the spell of enchantment, and just as a jibsheet block hits him on the shoulder he shouts “All aback for’a’d.”

Then fancy meeting a square-rigged beauty as she bowls along between Cape of Good Hope and New Zealand. This is her testing region, “running the easting down.” Her flimsy wings are clipped—showing gaunt spars and sparse canvas. The wind-god howls incessantly from his western caverns, piling the sea into mounds which are driven against the stern of the good ship. One wave of this kind could smash a vessel to pieces but just as its foaming crest appears to drop on the fearless helmsman, up goes her stern into the clouds and the seething mass passes under her keel.

When a windjammer lifts her stern in this manner her bowsprit and figurehead tumble into the abyss of the preceding wave, and for a moment the horizon ahead is hid by the rolling sea. Meantime a dollop of ocean weighing over one hundred tons has dropped through her main rigging and filled the well deck flush with the topgallant rail. Listen to this gurgling brine spewing from the scuppers and ports as the vessel shudders under the onslaught. Yes—and men and boys work at the ropes in such a turmoil. Should a hand be washed overboard in a gale with the ship hove to—he may be rescued by a rope or washed back again in the lee water, but nothing can save him if the vessel is before the gale.

Then stand on the cliffs near the Lizard lighthouse in Cornwall or look through binoculars from the Sandy Hook lightvessel and watch a square-rigged homeward bounder glide into port. Note how that passenger steamer runs across the windjammer's bows with mechanical pride and pomp as if to say “Ha, ha, there goes an old windbag—all limejuice and barnacles.” While that may be the sentiment of the third officer and a few monocled travellers, a very different song enters the minds of the steamship commander and his bosun. These veterans

are the only two souls on board the turbine driven hotel who eye the sailing ship with reminiscent joy and greet her with the words “Good old girl—that’s where I learned to be a sailor”. Mail-boat captains are not in the habit of fraternizing with their bosuns but this is an occasion which throws rank aside and kindles the spark of association that draws men into each other's confidence and makes them equals.

“What do you think of her bosun—isn't she a beauty?”

“Captain, that's my old ship—the HOOGLI—I could pick her out in a fog—she must be fifty years old. By the look of that white bone in her teeth she must be making 9 knots on the bowline. Her speed is 15 knots (17 miles) when running before a main topgallantsail breeze. Yes sir—she could throw a towline to a tramp steamer.”

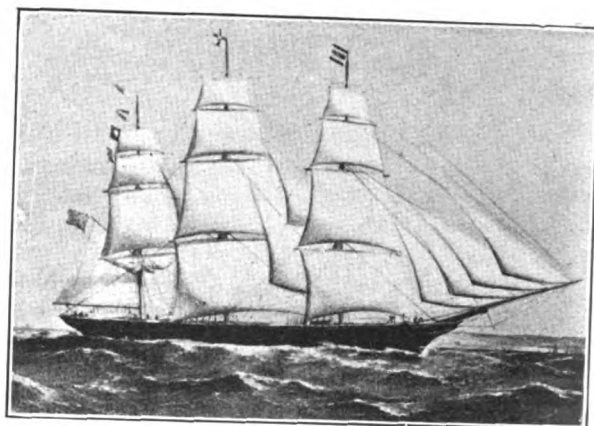
“Are you sure it's your old ship?” asked the captain, with a critical eye on the vanishing vessel.

“Nothing surer sir. Look at her fore and main royal yards—they measure 56 feet between the cliphooks of the braces. She is light on the mizen mast and never bends a crojak. Her monkey gaff is there too, and that whale-back wheel-house . . . sure of her . . . I have her picture painted on the lid of my chest.”

And so the two sailors exchanged notes and commented on the lustre of the windjammers varnished teakwood, the glint of her brass binnacles and other signs of inboard cleanliness. The rust on her hull and the barnacles on her weather side showed that she had been a long time out of drydock.

As the captain left the bosun's side he added the significant words: “That's going to sea—no wireless—no mechanical means of propulsion, and yet ships of that kind frequently cover 40,000 miles each year and in the same period carry an aggregate load of 12,000 tons of merchandise. And it's all done with ropes, spars, canvas and a trained crew—yes, that's going to sea.”

The Suez canal, the tramp steamer, and later the Panama water-way have all dealt a blow at the windjammer. And now like great birds tired of their migratory travels and ousted from the seas by thousands of throbbing propellers the square-rigged beauties have been disrated to coal hulks, tow bar-



A FULL RIGGED SHIP

ges, store ships and roadstead hospitals. What a fate for the fleet of merchantmen who carried the first cargoes of tea from China to London, the first cargoes of wool from Australia and the loads of jute from Calcutta. It was the square-rigged ship that hauled Pensacola timber across the North Atlantic and made that port a hive of industry. It was brigs and barques that built up the trade of old Quebec. And so the story runs—Chilian salt-petre, Brazilian coffee, Argentine wheat, Russian flax and West Indian rum and molasses. Even the whaling enterprise—the gold rushes and the colonizing schemes of the United States, Canada, New Zealand, Australia, South Africa and the West Indies were all carried on by the activities of the foreign-going windjammer.

The historian and the economist have never said much about the sailing ship and her work, but fortunately both the artist and the poet have given us paintings and verse which will live to remind the future generations of the most beautiful structure that man has ever launched on the bosom of the untamed ocean, a square-rigged sailing ship.

A picture of a square-rigged vessel should be hung up in every school in the United States and throughout the British Empire, for it was due to this type of craft and her indomitable crews that these nations became great upon the trade routes of the globe. Even should the rising generation forget about her commercial status, they would be blind if they failed to note her beauty as a marine structure—and where beauty reigns the mind becomes inquisitive.

A report from Secretary of War Davis Jan. 6 stated that the war department has turned back into the treasury \$16,000,000 profit from the operation of the Panama canal during the last year.

# Largest Laker Proves Efficient

Steamer Lemoyne Built In Canada Is Largest Vessel In the World on Fresh Water — Holds Record for Single Cargo of Wheat

TO CANADA and to a shipyard on Georgian bay, more noted by the skill of its men as ship-builders than by the extent of its equipment, must go the honor of having built the largest vessel in the world operating on fresh water. The S. S. LEMOYNE of the Canada Steamship lines built by the Midland Shipbuilding Co., Midland, Ont. and completed in August 1926 is the vessel referred to. She is 633 feet long; 613 feet in length on the keel; 70 feet in breadth; 29 feet in depth; and she has a carrying capacity of 14,500 tons on a draft of 18 feet even. Credit for initiating and carrying out the construction of this remarkable vessel is due James Wilkinson, manager of the Midland Shipbuilding Co. and to James Playfair for accepting and financing the proposal.

It is in her great beam and comparatively shallow depth that this vessel marks a radical departure from the usual Great Lakes bulk freighter. For instance, the new S. S. HARRY COULBY nearing completion at the Lorain yard of the American Shipbuilding Co., and the largest American freighter is 630 feet 9 inches in length overall, 607 feet between perpendiculars, 65 feet in beam and 33 feet deep. Her carrying capacity on a draft of 20 feet is approximately 13,800 tons.

## Has Taken Record Cargoes

According to the annual report of the Lake Carriers' association for

1926 when the LEMOYNE departed from Sandusky, O. on August 19, on her maiden trip, bound for Fort William, she had on board 15,415 net tons of soft coal. On Sept. 21, she took on at Fort William the largest cargo of wheat ever loaded on the Great Lakes. It consisted of 518,000 bushels equal to 15,540 short tons (2000 pounds) or 13,875 long tons (2240 pounds). This cargo the LEMOYNE carried on a draft of 18 feet 7 inches at each end.

In view of the successful operation of this ship and the fact that she is able to carry a greater cargo than any American ship at the same draft, it may be interesting to give some detailed particulars of her construction.

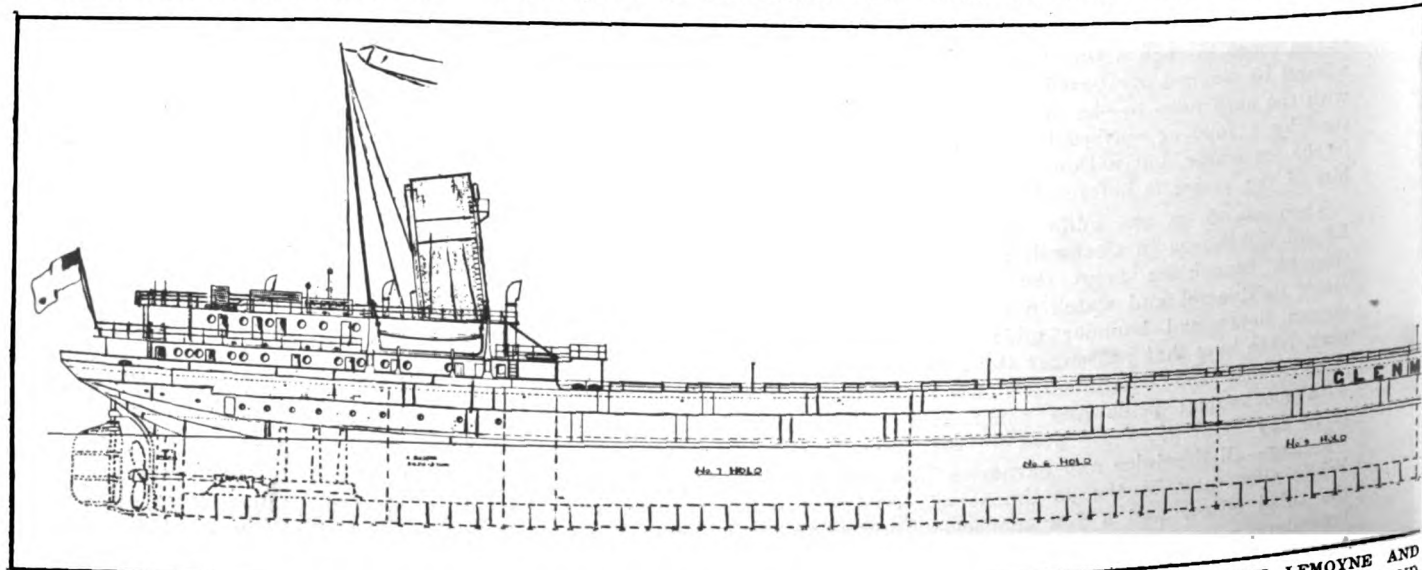
## Hull Construction

A double bottom 5 feet deep runs for the entire length of the ship, divided into seven watertight compartments. The side tank, which is separate from the double bottom, is fitted for the full length cargo hold, extends 5 feet in from ship's side, and is divided into three watertight compartments on each side of the ship. The side tank wall is extended up to the spar deck, leaving a tunnel 5 feet wide above the main deck; all steam pipes, electric wires, steering gear shafting, hose lines, etc., are located in this space and are easily accessible for repairs at any time when the ship is loaded.

The cargo hold is divided into seven

compartments by six screen bulkheads, the hold being 474 feet 0 inches long by 60 feet 0 inches wide. Access to cargo space is provided by 25 hatches, spaced 18 feet between centers, which spacing is said to be a new departure and to be found only on the Canada Steamship line's latest ships. All hatches are fitted with telescoping steel covers, operated by two 6 x 6-inches steam winches. For mooring, six 9 x 10-inches steam winches are installed, one at stern, four between aft houses and forecastle, and one in windlass room. The steering gear consists of a shaft controlled 9 x 9-inches engine, direct connected to rudder stock with control arms.

Forward there is a raised fore-castle, with large deckhouse above, which in turn is surmounted by the captain's quarters and pilot house. The fore-castle has accommodation for first and second mates, two wheelmen, two watchmen, one boatswain and one wireless operator; also officers' recreation hall, lavatories and shower baths. The deckhouse above the fore-castle contains three passenger staterooms, observation room, private dining room, kitchenette and accommodation for steward and cook. Above this is the captain's house, which is arranged with bedroom, office, bathroom, spare room and inside stairway leading up to pilot house. At the after end of the ship the lower deckhouse contains the officers' dining room, with private dining room adjoining. These rooms have



ORIGINALLY THE GLENMOR, BUILT FOR JAMES PLAYFAIR, NOW THE LEMOYNE AND FRESH WATER—BUILT BY THE MIDLAND



no connecting door, but are entered from the outside or from the steward's hall, and, contrary to usual practice, there are no doors in the dining rooms opening into bedrooms.

The cook's and steward's rooms are convenient to the galley and have bathroom adjoining. The deckhands, firemen and coal-passers, galley, pantry, stores and mess rooms are all located in this house, each living room having its own shower bath and lavatory. Above this accommodation is a steel house containing quarters for the engine room staff. The chief engineer has the entire after end of this structure, bedroom, bathroom, and office, with thwartship hallway running the full width of the house; the entrance to engine room is from this hallway, the stair leading down inside of engine casing. On the starboard side accommodation is provided for the second engineer, and one spare room; on the port side is located the third and fourth engineers and two oilers. All the cabins are finished in oak or mahogany, with painted fibreboard paneling, making an excellent finish.

#### Coal Burning Scotch Boilers

Steam is supplied by four scotch boilers, 13 feet 6 inches in diameter by 12 feet 0 inches long, with a total heating surface of 9088 square feet. Each boiler is fitted with three furnaces, 36 inches inside diameter; the total grate surface is 210 square feet, and the ratio of heating to grate surface is 43 to 1. The boilers are designed for a working pressure of 190 pounds per square inch. A forced draft installation is fitted in connection with the boilers, and there is a 75-in. diameter fan, driven by two 7 x 5 inches vertical engines lo-

cated in the engine room. The flue blowers are of the direct type, located in the smokeboxes, and operated by levers from the fire room floor.

#### Steam Propelling Machinery

The propelling machinery consists of a vertical triple expansion engine, arranged with the high pressure cylinder forward, followed by the intermediate and low pressure cylinders, respectively. The cylinder diameters are 25½, 41½ and 72 inches and the pistons have a stroke of 48 inches. The high pressure and intermediate cylinders are fitted with piston valves, and the low pressure with a double ported slide valve.

All valves are operated by double bar link motion, and fitted with assistant cylinders. The engine is arranged with three back and three front columns, fitted with ahead and astern slipper guides. The bedplate is of the girder type, and has 6 main bearings 14 inches in diameter. The connecting rods are of heavy fork type construction 9 feet between centers, with the bottom ends of cast steel, lined with white metal. The crank pins are 11½ inches in diameter by 13½ inches long. The crosshead pins are 6¾ inches in diameter by 7¾ inches long, double. The crossheads are solid steel forgings, fitted with adjustable slippers lined with white metal on both ahead and astern faces. The usual type of horseshoe thrust bearings have been used, with nine collars, water cooled inside, and running in an oil bath.

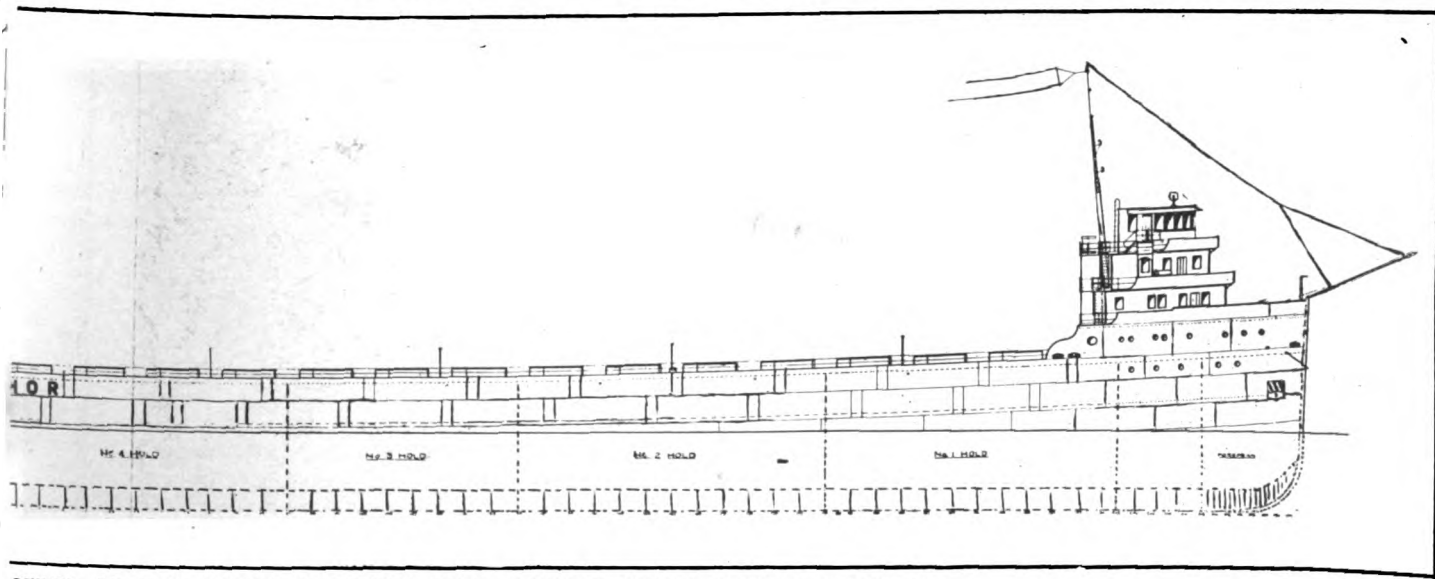
The stern tube is of heavy cast iron design, fitted with brass bush, lined with lignum vitae, 2 lengths, to permit of easy withdrawal and renewal of wood liners. The propeller shaft is 15½ inches in diam-

eter and the propeller is of the sectional type with four blades, and is 16 feet in diameter by 18 feet pitch.

All pumps are independent of the main engine. The air pump is of the vertical simplex type, direct connected to a jet condenser, having an 18-inch steam cylinder, and 40-inch pump chamber, with a common stroke of 24 inches. Two main ballast pumps of the centrifugal type 20 inches in diameter are arranged for filling and emptying the double bottom and side tanks through double manifolds fitted between the pumps. The cargo hold can also be flooded and used as ballast in rough weather, two filling and emptying pipes being connected to it from the manifolds in the engine rooms.

#### Auxiliary Machinery Complete

There are two auxiliary ballast pumps of the horizontal duplex type, 14 x 14 x 18 inches stroke, the suction and discharge connections being 12 inches in diameter. Two main feed pumps of the vertical simplex type, 12 x 8 x 24 inches are fitted, and arranged independently of each other, so that either can supply the boilers while the other is being overhauled. Other auxiliaries included in the installation are: general service pump, 8 x 5 x 12 inches, horizontal duplex; two 2½-inch injectors; vertical spiral coil, film feed water heater, mate's pump, 10 x 6 x 12 inches, horizontal duplex; 2 bilge pumps, 6 x 4 x 6 inches, horizontal duplex; fresh water pump 4 x 2¼ x 4 inches, horizontal duplex; 2 ash elevators, in the boiler room, one on each side of the ship. The electrical equipment consists of two 15 kilowatt direct connected generating sets. Refrigeration is amply provided for in a special chamber adjacent to the pantry.



OWNED BY THE CANADA STEAMSHIP LINES—LARGEST VESSEL IN THE WORLD ON  
SHIP BUILDING CO., MIDLAND, ONT., CANADA

# Memorial to Donald McKay

THERE is in Boston a Donald McKay memorial committee organized for the purpose of interesting others like they themselves are interested in erecting a suitable memorial to a great shipbuilder. The amount in hand is now about \$10,000. To erect the kind of memorial the committee has in mind will require not less than \$15,000. J. Templeton Coolidge is chairman, Chas. K. Bolton is secretary and Allan Forbes is treasurer, State Street Trust Co., Boston.

It is brought out that among the monuments to soldiers, statesmen, preachers, and public benefactors with which the city of Boston is already greatly enriched, a memorial to so worthy a man, of so unassuming a condition, and who gained his pre-eminence in so unusual and so picturesque an occupation, would stand out not only as a refreshing variation, but as a most welcome suggestion of the romantic, adventurous, self-resourceful kind of life which is not so easily attainable today as it once was.

Donald McKay was born of Scots stock at Shelburne, Nova Scotia in 1810. He emigrated early in life to New York and went to work at the

shipyard of Isaac Webb. At the age of 30 he removed to Massachusetts, first working under John Currier Jr., a leading shipbuilder of Newburyport, and then becoming a partner in 1841. It was here he produced for New York order two ships which proved wonders for finish, appearance and speed. He did much to advance and glorify the American merchant marine between 1843 and 1869. He designed and built at East Boston the fastest, staunchest and most beautiful sailing ships that the world has ever seen.

To quote from Samuel Eliot Morison's *Maritime History of Massachusetts 1783-1860*: "On March 18, 1853, the SOVEREIGN OF THE SEAS made 411 nautical miles; an average of 17.7 knots and a day's run surpassed only by the RED JACKET and by later creations of Donald McKay.

"With this group the LIGHTNING, CHAMPION OF THE SEAS, JAMES BAINES and DONALD MCKAY, American shipbuilding reached its apogee. The JAMES BAINES on her way across, made the record transatlantic passage for sailing vessels, 12 days, 6 hours from Boston light to Rock light, Liver-

pool. 'She is so strongly built, so finely finished and is of so beautiful a model,' wrote a contemporary from Liverpool, 'that even envy cannot prompt a fault against her. On all hands she has been praised as the most perfect sailing ship that ever entered the river Mersey.'"

## June Lake Levels

The United States Lake survey reports the monthly mean stages of the Great Lakes for the month of June, 1927, as follows:

Lakes	Feet Above Mean Sea Level
Superior .....	602.33
Michigan-Huron .....	579.43
St. Clair .....	574.73
Erie .....	572.20
Ontario .....	246.11

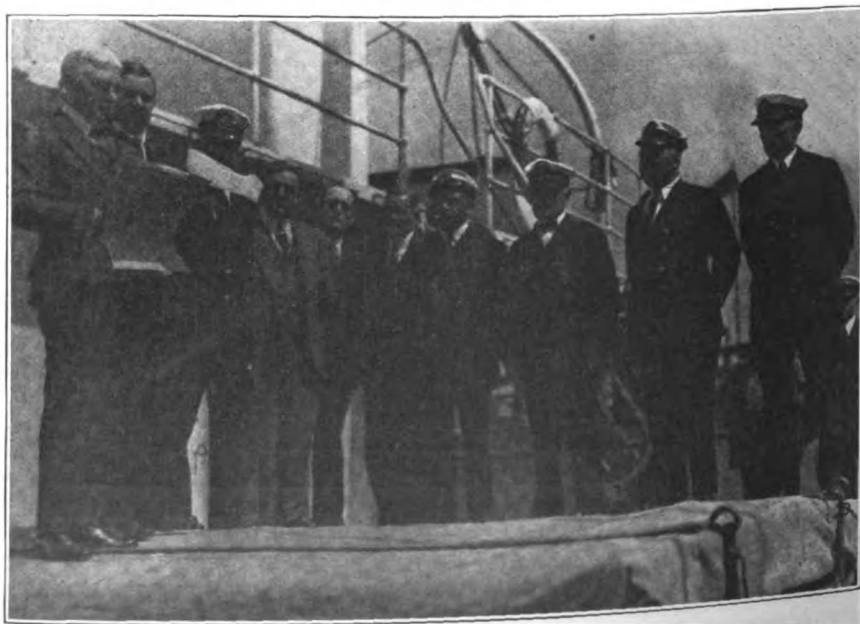
Lake Superior is 0.37 foot higher than in May and it was 1.83 feet higher than the low June stage of a year ago. Lakes Michigan-Huron are 0.29 foot higher than in May and they were 1.02 feet higher than the low June stage of a year ago. Lake Erie is 0.25 foot higher than in May and it was 0.96 foot higher than the June stage of a year ago. Lake Ontario is 0.16 foot higher than in May and it was 0.80 foot higher than the June stage of a year ago, 0.27 foot below the average stage of June of the last ten years. It looks as if the levels will continue to rise.

## Italian Government Honors American Sailors

GEN. A. C. DALTON, president of the Merchant Fleet Corp., on board the S. S. HARDING reading the citation of the Italian Government in the case of the American officers and seamen who participated in the rescue of the crew of the S. S. IGNAZIO FLORIO Oct. 20, 1925. Medals were also presented. In the group from left to right, Gen. A. C. Dalton, Emilio Axerio Italian consul general, Capt. Theo. Van Beek, William Perrott, Geo. S. Mabey, Captain Lyndon and the men decorated—Only Strelow, Seaton, Meyer and Skare were present at the ceremonies. Medals and diplomas will be forwarded to Capt. Paul C. Grening, First Officer Giles C.

Stedman and John G. Wiggle who also participated in the rescue. A

detailed account, of the achievement is related in the diplomas presented.





# To Use Pulverized Coal System

Will Convert S. S. Mercer to Burn Powdered Coal—Tests Here and Abroad  
Successful—Fuel Costs Reduced—Less Fire Room Labor

By A. H. Jansson

**B**URNING pulverized coal in marine boilers of either the water tube or scotch type is already entirely practical. It has been successfully done in test installations for some time. During the operation of these tests many experiments have been made naturally to determine the best and most efficient way to burn pulverized coal.

It is because the directors, of such stations as the one at the League Island navy yard, Philadelphia, and the experimental installations of private companies, are determined to develop the greatest efficiency and the best manner of burning pulverized coal that this system is not yet generally offered as a commercial proposition for installation on board ship.

The test at present being carried out at the fuel testing station at the League Island navy yard is with a standard scotch marine type of boiler. The entire test unit is self-contained. That is, the coal is brought there in its natural state and is pulverized, and blown into the furnaces in the amount required for combustion. The system used is similar in many respects to that used in burning fuel oil.

## High Degree of Fineness Necessary

Ordinary soft bunker coal is crushed by iron balls in a revolving drum. The finely powdered coal which is so fine that it has the feel of talcum powder when rubbed in the hand passes under air pressure through pipes of approximately 5 inches in diameter to each furnace. In the system used at the navy yard the fine particles of coal are given a whirling motion as they enter the furnace. Lighting off the boiler is done by using fuel oil for a brief period and then shifting to the powdered coal. Complete combustion takes place and the flame practically fills the furnace space. Only a light residue of ash remains which can readily be removed as necessary, probably not more frequently than once in every twenty-four hours. Experiments are being continued to determine the proper mixture of air and fuel and the necessary quantity of fuel covering the entire range of possible boiler ratings. When this is established the question of maneuvering with pulverized coal will be largely settled. A

continuous night and day run will also be carried out in order to find out in a practical way what effect this will have on the operation of the system.

It is generally conceded that the application of pulverized coal to marine water tube boilers is far simpler than to the fire tube or scotch marine type. The writer had the opportunity of seeing powdered coal burned in a marine water tube boiler with complete success. It was really remarkable how simple the whole installation seemed. There was no pulsation or drumming and combustion was entirely complete. The flames had much the appearance of that obtained when burning oil. In this case fires can be lighted directly with the powdered coal without the preliminary use of oil. A ball mill of cylindrical type was used for pulverizing the coal and as in the case of the scotch boiler types the coal was taken in its natural state, ground to proper fineness and then blown into the furnace as required for the particular rating under which the boiler was operating.

From a practical point of view coming to an actual installation on board ship the problem is no longer the successful burning of the coal but it is rather in working out convenient and economical means of handling the comparatively large quantities of coal in the bunkers so that as needed the coal may be readily moved to the mill or mills for crushing. Also the definite development of mills capable of giving the proper fineness of coal in sufficient quantities without sacrificing an undue amount in weight and space. Another point is that the process of crushing the coal should be made as nearly noiseless as is mechanically possible. With these important auxiliary features thoroughly solved the burning of pulverized coal on board ship should prove entirely successful.

## Powdered Coal System Practical

In the tests briefly reviewed above it was stated that efficiencies were obtained comparable with those when using oil as fuel. It is quiet evident, if efficiencies over 80 per cent can be obtained in using powdered coal, that this system will prove very economical.

Spot price for bunker coal in New York alongside ship on July 19 was \$5.65 per ton. Fuel oil was quoted at its lowest price for over a year at the same day at \$1.65 a barrel. Taking coal at 14,000 b.t.u. per pound and oil at 18,600 b.t.u., one pound of oil is equivalent to 1.325 pounds of coal. If the quantity of oil in one barrel weighs 336 pounds then one barrel of fuel oil will be equivalent in heat value to 445 pounds of coal. At the rate of \$5.65 a ton for coal this would mean that an amount of coal costing \$1.12 will do the same amount of work as one barrel of oil at \$1.65. Which means that even for the present low price of oil the cost of producing steam using pulverized coal will be 32 per cent less than that using oil. It is easily conceivable that under conditions of high priced oil and low priced coal that this difference could be increased greatly in favor of coal. Another factor of great importance is the possibility of burning lower grade coal. By removing the human element from the stoking of boilers it will be possible to maintain indefinite periods of steady steaming. There will be no possibilities of difficulties with the black gang and the last man killing labor will then have been removed from ship operations. It will, of course, also reduce the expense of the fire room crew which needs to be no larger than for oil burning.

## What the British are Doing

Interest in the practical application of pulverized coal for marine purposes is world wide and it is particularly keen in Great Britain. A complete and interesting lengthy paper with many diagrams and tables was read by Engineer Captain J. C. Brand at the summer meetings of the sixty-eighth session of the Institution of Naval Architects on July 12 at Cambridge, England. The paper indicates the types of fuel suitable for pulverization and discusses the effect of grinding, preheating, turbulence and moisture on combustion in confined spaces. The author's definition of powdered fuel as used in his paper includes any carbonaceous fuel which is in a sufficiently finely divided state to be impelled by or borne in air and burned while in a state of suspension.

In regard to suitable fuels he recommends slack or breeze rather than larger pieces since it is more economical to grind. Also small fuel is of less value on the market.

For marine work Captain Brand points out that a pulverizer for grinding the coal should be economical in weight and space and it should be especially designed to make easy replacement and repairs. Also that its parts should be small enough to be moved through small hatchways. It is most important that all parts from the coal feed of the hopper to the spindle accesses to the beaters and fans should be dust-proof. The power required to grind coal varies with moisture content and fineness of the product. Due to the limited combustion space in a marine boiler of either water tube or scotch type it is necessary that the coal be reduced to a high degree of fineness.

It is important to avoid moisture in fuel as it has a detrimental effect on the freedom of flow without which certainty and evenness of operation are impossible. Captain Brand goes on to say in connection with preheated air, that in order to have the coal particle, its gas envelope and surrounding air, all near the ignition point on entering the furnace, it is desirable to heat both primary and secondary air. Preheating to a temperature of 446 degrees Fahr. by using a heater placed in the path of the funnel gases is recommended. Turbulence is also considered necessary just as it is in the combustion of oil in a diesel engine. Particularly is this so for a short flame powdered fuel burner.

#### Installation on British Ship

A portion of the paper is devoted to an explanation of the author's system of pulverized coal burning for marine installation. Plates are also published showing drawings of an installation with a scotch marine boiler in a merchant vessel. Clarke Chapman & Co. Ltd. has also gone deeply into the question of pulverized coal and the use of such fuel in boilers at sea. A number of trials with different types of burners and arrangement of furnace fronts have been carried out. Drawings show the first, second and third attempts along this line and test figures of the trials with the Clarke Chapman system are also given. In one of these trials 6.65 pounds of water was evaporated per pound of fuel. The fuel fired per hour was 585 pounds. Water evaporated per hour was 3890 pounds. One of the interesting results was in finding that the residue from low temperature distillation burns with as

much facility as coal containing a high percentage of volatile hydrocarbons.

Unit pulverizers are also discussed. The author stating that there are some excellent types on the market though their weight is somewhat excessive for the output, which is probably due to the fact that they have all practically been designed for shore use where weight and space are of little moment. He recommends that if a unit machine is carried on board it be placed in a small well ventilated compartment of its own and that it deliver through a separator to the ready-use bin in the boiler room. The coal should be fed mechanically or pneumatically with hot funnel gas introduced at the inlet though the temperature at the inlet should not exceed 300 degrees Fahr. More funnel gas may be introduced at the delivery end at a temperature of 390 degrees Fahr.

#### Advantages of the Brand System

Captain Brand in his pulverized fuel system for marine installation, in order to secure freedom from risk of spontaneous combustion or explosion observes the following precautions:

The fuel is dried and ground on shore. The grinding station may be on the foreshore or half a mile away. No difficulty is experienced in forcing the material through pipes. The propelling agent is inert flue gas from the drier which has been cooled and compressed to a pressure of 40 pounds per square inch. Five cubic feet of gas at 40 pounds pressure is required per ton of fuel. The ship end of the hose is connected to a gas relief separator fastened to the bunker lid. Before bunkering a quantity of gas is blown into the bunker through the hose, displacing any air present. It was found that one ton of dust per minute may be forced through 500 feet of 4-inch piping by a pressure of 40 pounds per square foot. Each particle of coal is sealed by inert gas with which all the interstices are filled, to the exclusion of oxygen, leaving no vehicle for the propagation of flame. Since CO<sub>2</sub> is heavier than air it takes the place of air which flows away through the separator. After completing bunkering the bunker lid joint is made and the bunker sealed to prevent admission of air and its diffusion into the CO<sub>2</sub>. No moisture can gather as the compartment is air tight except what was in it when empty and that contained in the fuel dust and gas content.

Where the coal is already pulverized as it is taken on the vessel there is fitted a ready-use bin which provides storage for sufficient fuel for

a limited period of steaming. This bin is dust proof. One may be used for the whole boiler room or there may be separate ones for each large boiler. A machine cut screw feeder rotating in a casing feeds the dust forward to the down pipe. This screw is manipulated by a variable speed gear, motor driven, and has a range of coal of from 60 pounds per hour up to a maximum for a large furnace of 700 pounds per hour.

The author finally describes the actual operation of the boiler with this system of pulverized coal. With sufficient coal in the ready-used bin the fan is started at low speed and air is admitted to the primary pipe. A lighted torch made of oily waste is passed through the spectacle hole to the front of the burner. The latter is drawn back to the inner edge of the cone brick work. The feeder screw is then started at lowest speed. At the end of five minutes the torch can be withdrawn. In fifteen minutes the cone bricks will be sufficiently warm to support combustion and the feeder pipe can be advanced farther toward the furnace. A feed rate of 60 pounds per hour should not be exceeded until the refractory in the furnace extension reaches a temperature of about 930 degrees Fahr. Until an input of 100 pounds of dust an hour is reached the primary air supply will be sufficient after which secondary air should be admitted. As soon as the brick work is incandescent the primary air can be opened out and the secondary air regulated to suit the input of dust and power required.

#### Results Are Summarized

Captain Brand then calls attention to the following features of the system:

1. Finely divided fuel dust is provided.
2. Preheated air is supplied.
3. Provision is made for lighting up, low and high rates of steaming.
4. Turbulence is attained with a very short flame.
5. Change of direction of the gases deposits the slag, if any, near the ash door.
6. Expansion of the gases after passing the bridge allows the heavier particles of ash to deposit in the furnace bottom, from whence they can be withdrawn.
7. Absolute control is maintained over the speed of the fuel feeder and the secondary air admission; these are interlocked for all furnaces; so that the attendant can control all furnaces in one stroke-hold by means of one lever.
8. Sufficient refractory surface is present to permit of restarting the fires instantaneously, even after a stop of about 20 minutes.

The author states that no more



gear is entailed in the aggregate than with an oil fuel installation but the various parts are necessarily more bulky. Only the same number of attendants are required as with liquid fuel. Some of the advantages of pulverized fuel are enumerated by Captain Brand as follows:

1. Powdered fuel fired into a furnace is from 10 to 30 per cent more efficient than hand-firing.
2. A vessel can go 5 per cent farther on the same stowage as run of mine coal, or from 15 per cent to 30 per cent farther on the same weight of pulverized coal as run of mine coal.
3. The number of firemen and trimmers required is only one-third of the number used for hand-firing, and the same as required for oil-fuel burning.
4. The coal could be loaded into the

ship's bunkers without the assistance of coal trimmers, e. g. blown in through pipes.

5. Stand-by-losses, banked fires, and irregular steaming are obviated.
6. Labor troubles from coal trimmers and firemen are avoided.
7. A cheaper quality of fuel can be utilized.
8. The wear and tear on the heating surfaces of the boilers is less, as fire doors are not opened for firing.
9. No discomfort for passengers while ship is being coaled, also no blackening of paint work during coaling operations.
10. No heavy smoking at the funnel.

#### Authorize Installation on S. S. Mercer

The fuel conservation committee of the Merchant Fleet Corp. through its chairman Capt. C. A. McAllister and its active head C. J. Jefferson has done everything in its power to facili-

tate the continuance of tests which are being carried on at the League Island navy yard under Commander Evans. That the results indicate the practicability of burning pulverized coal in marine boilers is evident from an announcement made July 6 by the shipping board, authorizing the installation of apparatus to permit the consumption of pulverized coal as fuel on the S. S. MERCER. This action by the board was based directly on the results obtained during tests at the League Island navy yard station.

This vessel is of 9730 tons dead-weight and was at the time of the authorization of her conversion laid up at Norfolk. She will proceed to the Philadelphia navy yard where installation of the pulverized coal equipment will take place.

## Launch Diesel Ferries for New York

THE first diesel engined ferries to be constructed by the department of plant & structures of New York City were launched July 19 at the Tebo plant of the Todd Shipyards Corp., Brooklyn. The GREENWICH VILLAGE and the MOTT HAVEN were sponsored respectively by Mrs. Alfred E. Smith, wife of the governor and Mrs. Joseph V. McKee, wife of the president of the board of aldermen.

Each ferry will be equipped with one 300 Shaft horsepower Nelsco diesel

long with a beam of 30 feet and a depth of 12 feet and displace 234 tons. Accommodations are provided for seven vehicles and there are side cabins with a seating capacity of 74 persons.

One of the boats will operate between City and Hart's islands and the other between East One Hundred and Thirty-fourth street and North Brother and Riker's islands. These terminals are now served by steam boats, but due to the obsolescence of this type of machinery, these modern ferries will give improved service to the hos-

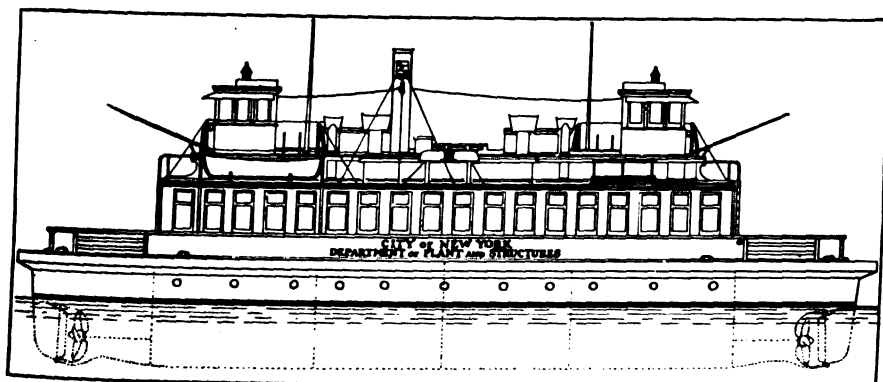
J. Byrne, Fire Commissioner John Dorman and Supreme Court Justice Stephen Gallagher.

### River Carferry Service Now in Operation

Jones & Laughlin Steel Corp. is now operating a car ferry service between its plants on the Monongahela and Ohio rivers. A barge carrying eight freight cars loaded with steel products was towed from the main plant on the Monongahela river to the Aliquippa plant 22 miles down the Ohio river, July 1. At the Pittsburgh and Aliquippa plants cars are shunted over cradles upon the barges which are 200 feet long, 35 feet wide, 9 feet 7 inches deep and capable of carrying four cars on each of two tracks. It is said this is the first river car ferry service ever operated by a west-ern steel interest.

Jones & Laughlin Steel Corp. was the first steel producer to transport coal in river barges from mines to the mills and coke ovens. It has been doing this for 35 years. In 1921 the corporation turned to the Ohio and Mississippi rivers for low-cost delivery of manufactured products, and it now ships many thousands of tons annually thus to Cincinnati, Louisville, Ky., Evansville, Ind., St. Louis, Memphis, Tenn., and New Orleans.

After fifty years in the employ of the Canada Steamship lines, Capt. George Batten recently retired from active service.



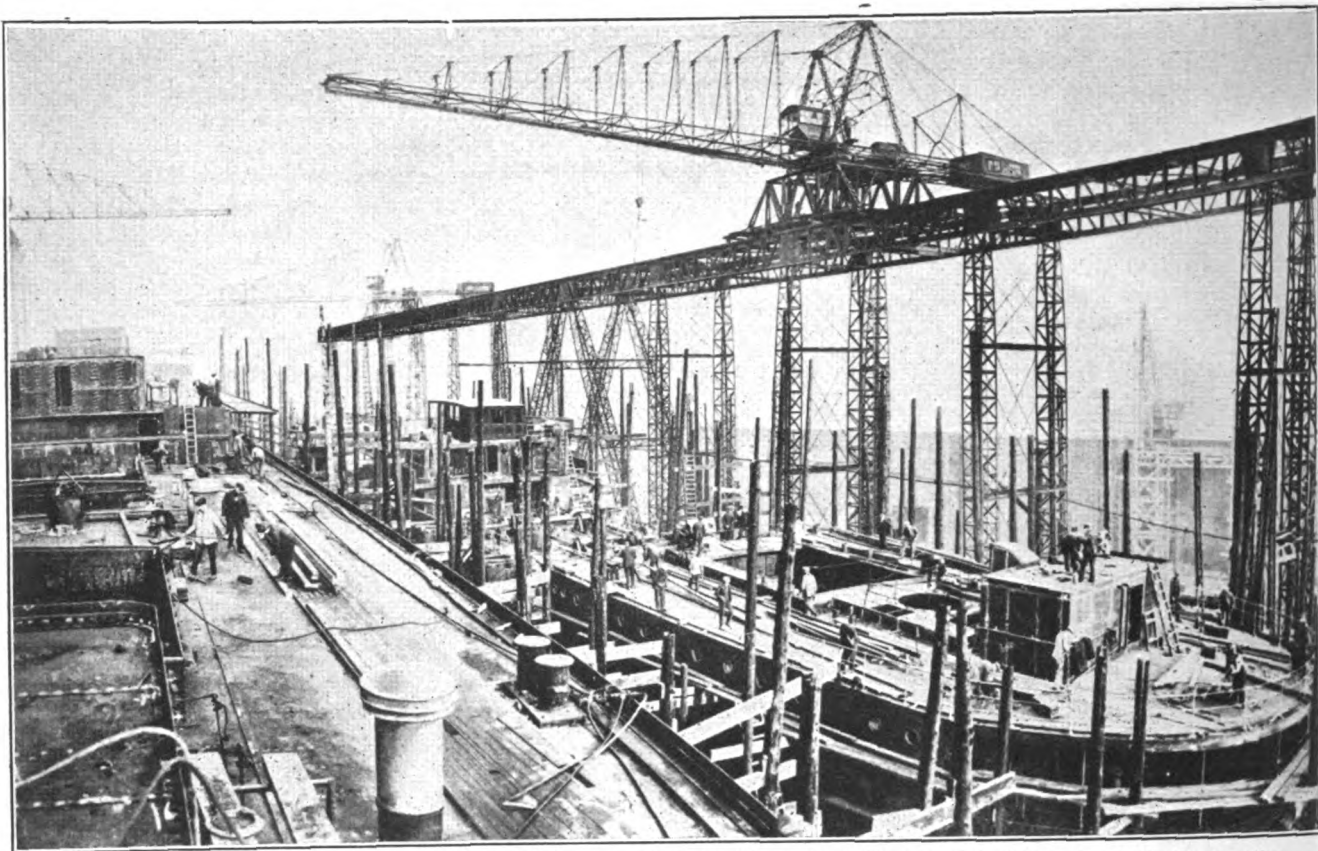
NEW DIESEL FERRY BOAT FOR THE CITY OF NEW YORK

engine, built by the New London Ship & Engine Co., Groton, Conn. The engines are of the 6 cylinder, 4 cycle, mechanical injection, direct reversible type and will give the boats a speed of about ten miles per hour. The engines are directly connected to the propeller shaft and are maneuvered from the engine room, as is customary with steam installations.

The vessels are of steel, 101.6 feet

pitals and penal institutions, as well as effecting large reductions in operating costs.

Among those present at the launching ceremonies were Mayor Walker, Aldermanic President McKee and other members of the board of estimate, Police Commissioner Warren, Commissioner Albert Goldman of the department of plant & structures, John H. McCooley, Borough President James



Wallsend Shipyard, Swan, Hunter and Wigham, Richardson, Ltd., Showing a Cargo Vessel and An Oil Tanker Under Construction

# Shipping and Shipbuilding Show Marked Revival In British Isles

By Vincent Delpont  
*European Manager Marine Review*

**E**NCOURAGING statements concerning the British shipping and shipbuilding industries were made at recent company meetings. Lord Kysant, one of the leading shipowners and shipbuilders of Great Britain, said that he is hopeful that British trade and commerce are now approaching an era of better and more settled times. Already in April, at the annual meeting of Harland & Wolff, Ltd., Lord Kysant stated that of the twenty-six berths in the company's shipyards at Belfast, Glasgow and Greenock, twenty-four were occupied. More recently, at the meeting of the Royal Mail Steam Packet Co., the same speaker said: "I am personally a believer in the principle of trade cycles, which throughout my business life have usually been of seven to ten years' duration. It is now just over seven years since the slump began, and I incline to the view that the upward movement, although as yet not very pronounced, has already begun."

A certain restrained optimism can reasonably be expected on the part

of those responsible for the management of British shipping. The leading concerns have weathered last year's storm and today freights are higher than they were a year ago and running costs are somewhat lower. Business has revived, perhaps more than was expected. The overseas demand for British coal, following the shortage of supplies due to last year's stoppage, is considerable. Grain loadings from Canada and Argentina to European and other foreign ports have been heavy. Passenger traffic is expanding. These factors are inspiring confidence, and following the improvement of the shipping conditions, owners have given orders for new ships. Thus the shipbuilding industry also is benefiting from the situation, although much of the work is being done at little or no profit. However, in recent months the amount of laid-up tonnage has been steadily decreasing and recent experience has shown that a large amount of unemployed ships

are obsolete, so that more orders can be expected in the future, when working conditions in the yards will, it is hoped, be more economical.

There is better employment on the Clyde, which is one of the prominent shipbuilding districts in Great Britain. At the beginning of this year there were 75,295 workers receiving unemployment benefit; at the end of May the number was 47,500. During the five months ending May 31 this year, 72 vessels of 104,700 tons were launched in the district, which figures compare with 68 vessels of 140,030 tons in the corresponding period of last year and 92 vessels of 259,500 tons in the first five months of 1925. This year's figures are due to the fact that the industry had to recover from last year's labor troubles, but the amount of work now on hand is much larger than a year ago.

Important contracts recently have been obtained by British shipyards. On the Clyde there was great satisfaction at the award of a foreign order for a cargo steamer from Erhardt and Dekkers of Rotterdam. The

MARINE REVIEW—August, 1927



vessel will be 385 feet in length and of 7800 tons deadweight; it will be built by the Clyde Shipbuilding and Engineering Co., Port Glasgow. The Blythswood Shipbuilding Co., Scotstoun, has obtained two contracts for single-screw passenger and cargo ships between 10,000 and 11,000 tons deadweight; they will be propelled at a speed of 11½ knots by Harland, Burmeister & Wain engines made by John G. Kincaid & Co., Greenock. Four twin-screw ships of the same size and with similar engines are laid at the same yards for Furness, Withy & Co.

#### All Yards Are Benefited

The Canadian Pacific Railway has placed an order for two liners with John Brown & Co., Clydebank. Each vessel will be 585 feet in length, 75 feet in breadth, 27 feet in draught and of about 18,000 tons gross. Two sister ships were ordered last year, one from John Brown & Co. and the other from William Beardmore & Co., Dalmuir. These four ships are intended for North Atlantic service; the first two will be ready early in 1928. In all there now are on hand on the Clyde eight Canadian Pacific railway ships aggregating about 103,000 tons. All the vessels will be propelled by twin-screw geared turbines, and the machinery will be of the Parsons high-pressure type. Alexander Stephen & Sons, Linthouse, have been awarded a 19,000-ton liner by the P. and O. company. The vessel will be 600 feet in length, with a speed of 19 knots. It will be propelled by twin-screw high-pressure turbines and water-tube boilers with electrical transmission gear. Three other liners for the P. and O. company were previously booked by Harland & Wolff, Greenock.

On the North-east coast, William Gray & Co., West Hartlepool, are to build a cargo steamer of 8650 tons deadweight, to be fitted with quadruple expansion engines manufactured by the Central Marine Engine Works; this vessel is to be delivered in March, 1928. The same shipbuilders are

also to build two steamers, each of about 8645 tons, for Sir William Reardon Smith & Sons, Ltd., and one 8000-ton steamer for Pyman Bros., Ltd., London. The British Tanker Co. has placed two orders with Palmers Shipbuilding & Iron Co. for tankers, each of 10,000 tons. The contract brings the total number of orders received by this firm from The British Tanker Co. to fourteen. Armstrong-Whitworth & Co., Ltd., have received an order from Bergen, Norway, owners for a motor tanker of 8200 tons. The same firm is to build a steamer of 8800 tons for Steana Roumana (British) of Rumania; this vessel will have quadruple expansion engines. Armstrong-Whitworth also have just received an order for three oil tankers for the Anglo-Mexican Petroleum Co. Launchings on the Tyne from Jan. 1 to the end of May were 15 vessels aggregating 66,604 tons, as against 26 vessels of 87,194 tons launched in the corresponding period of last year.

Other contracts for vessels of 10,000 tons and over received during the past three months include one 12,000-ton steamer awarded by Hunting & Son of Newcastle-on-Tyne to Cammell, Laird & Co., Ltd., of Birkenhead, one 10,000-ton steamer, which F. Leyland & Co., Ltd., Liverpool, has awarded to the Caledon Shipbuilding and Engineering Co., Dundee, one diesel-electric oil tanker of 12,000 tons placed by the Atlantic Refining Co., Philadelphia, with Scott's Shipbuilding and Engineering Co., Ltd., Greenock. One 8600-ton oil tanker for the Vacuum Oil Co., Ltd., was obtained by Harland & Wolff, Ltd., Belfast.

#### White Star Liner Launched

Among the launchings recently reported, one of the outstanding ones is that of the LAURENTIC, a triple-screw passenger vessel of 18,700 gross tons, launched at Belfast on June 16 for the Canadian service of the White Star Line. This liner will have accommodation for 1600 passengers, cabin, tourist third cabin, and

third class, and is scheduled to be ready November this year. The oil-tanker TEAKWOOD has been launched from the Armstrong yard of Sir W. G. Armstrong, Whitworth & Co., Ltd. The vessel is 415 feet in length between perpendiculars, has a carrying capacity of about 8825 tons, and was ordered by the Teakwood Steamship Co. (1926) Ltd. Palmers Shipbuilding & Iron Co. has launched an oil-tanker of 11,000 tons, which was built in 100 days. This vessel brings the oil-tanker tonnage built by the firm up to 600,000 tons. The Fairfield Shipbuilding and Engineering Co., Govan, Glasgow, has launched at the Fairfield yards the second of two 10,000-ton motorships ordered by Bibby Bros. & Co. of Liverpool. Three similar vessels are on hand at the same yards for other owners. There has been some improvement in the ship-repairing trade, some contracts having been obtained in the face of strong foreign competition. The above outline of activities in British shipbuilding shows the progress that has been made since the beginning of this year. It should be remembered, however, that many slips still are empty and that the bulk of the orders has been taken at a very small profit, in some cases with no profit, in order to keep plants working and to prevent skilled workmen being lost.

#### Ship Sales Are Active

The ship sale market has been active during the past quarter. Foreign owners, particularly Greeks and Italians, have been on the market. Estonia, Latvia and other countries also have been buying second-hand tonnage. Several deals are interesting to record. In April, the twin-screw steamer ORMUZ (ex ZEPPELIN) of 14,588 tons, built in 1914, belonging to the Orient Steam Navigation Co., was sold to the North German Lloyd of Bremen and realized about £300,000 (\$1,455,000). In May, the S. S. VALDURA, of 9150 tons, built in 1910, was purchased by the Arbor Shipping Co., Ltd., from Glasgow owners. (Continued on Page 54)

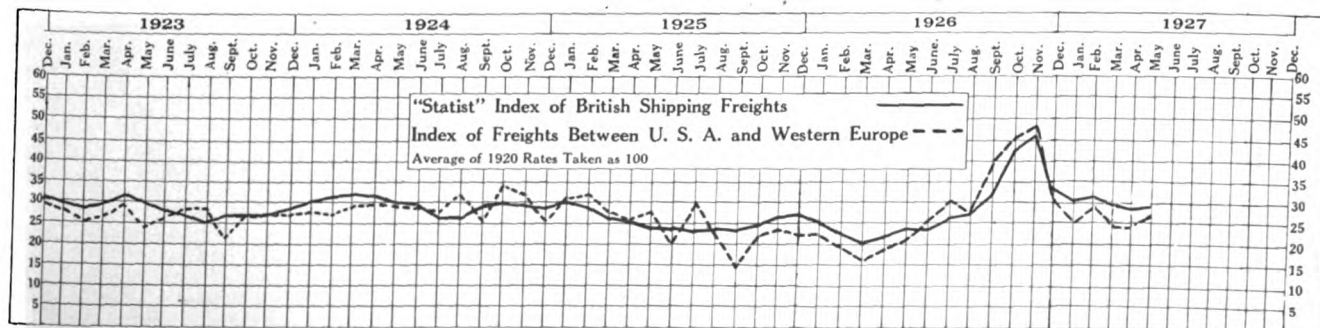


DIAGRAM SHOWING FLUCTUATION OF OCEAN FREIGHT RATES FOR FOUR YEARS AND FIVE MONTHS

# Late Decisions in Maritime Law

## Legal Tips for Shipowners and Officers

Specialty Compiled for Marine Review

By Harry Bowne Skillman

Attorney at Law

**C**ARGO delivered at ship side in accordance with contract for delivery to vessel as fast as she could receive it, and which had been receipted for by the master, was at the carrier's risk.—*OLGA S.*, 10 F. (2d) 801.

**I**T IS a well-established rule that a general agent is not entitled to a lien for supplies furnished as he is presumed to rely upon the credit of the owner; and a general agent may not avoid the rule by proceeding through one of its subagents.—*AMERICAN STAR*, 11 F. (2d) 479.

**S**EAMEN have no lien for wages against a privately owned vessel, owned and operated by a foreign government when liability was incurred, it was held in the case of *NEVADA*, 11 F. (2d) 511. "The maritime law passes by the thing," it was said, "and places the liability on the sovereign owner alone, and not upon the maritime instrumentalities of its sovereign."

**W**HERE decay of fish was due to delay in accepting and forwarding them, a claim based on that delay is not governed by a provision in the bill of lading that no claim will be admitted, unless made before the goods are removed; said provision relates to the carriage of the goods on the voyage, and does not affect a contract obligation incurred before the bill of lading was signed.—*R. B. Boak & Co. v. United States Shipping Board Emergency Fleet Corp.* 11 F. (2d) 523.

**R**ULE of board of supervising inspectors, requiring presence of quartermaster in pilot house, is maintained to cover any emergency caused by sudden disability of the pilot, and does not excuse the absence of a lookout.—*SCANDINAVIA*, 11 F. (2d) 542.

**N**O RECOVERY can be had of a tug for injury to its tow simply because of towing through ice, which was soft and had been broken up by tugs going in and out, but negligence on the part of the tug must be shown.—*BEAR*, 11 F. (2d) 607.

**A**TUG using as a towline a barge's hawser, the work for which it was being used necessarily making the exterior dirty and discolored, did not have the burden of examining each foot thereof, not merely with the eye, but by careful separation of the strands, to discover a "burnt" or rotten spot.—*MARY J. KENNEDY*, 11 F. (2d) 623.

**A** BROKER does not have a lien upon a ship for services rendered in causing cancellation of fines assessed against the crew and ship for violation of Federal laws, where he advanced necessary credit to pay penalties, if they were not canceled.—*LA MERCED*, 11 F. (2d) 672.

**W**HERE weather encountered by a vessel, if not actually anticipated, was of a kind reasonably to have been expected on a transpacific voyage, it was not a peril of the sea, within a provision of the bill of lading exempting the vessel from liability for damage to cargo caused by perils of the sea.—*ARAKAN*, 11 F. (2d) 791.

**A**S RESPECTS third parties, the owners of a ship are responsible on the respondent superior principle for the negligence of a navigator, who with their consent is in charge of the ship, notwithstanding that the navigator is at the time in the general employ of another; as respects two employers, however, each employer is responsible for the negligent acts of his employees in the general scope of their employment.—*AMERICAN DREDGING CO. v. VACUUM OIL CO.*, 11 F. (2d) 884.

**S**EAMEN who, after vessel was forced into port before reaching destination, and on learning that the master was short of funds, demanded half pay, and who, on being told that the ship's agent had been telegraphed to send money, and that the master would see what he could do in the morning, abandoned the ship, were not entitled to full pay to date of refusal and double pay to date of payment, their conduct being unreasonable and arbitrary.—*NANCY*, 11 F. (2d) 318.

**T**HE law giving wages to a seaman falling sick while in the service of the ship is founded on general maritime law, and such wages must be given as long as the voyage continues. Under this law, the court, in the case of *JUNEAU*, 11 F. (2d) 430, decided that a seaman was entitled to wages while in hospital, upon its being shown that the voyage had not ended when he left hospital.

**T**HE question in collision cases is always: What money will reasonably but fully compensate libellant for the damages he proves? In nine cases out of ten, the repair bill represents a large item in reckoning compensation, and the party injured and paying the bill is limited to what he paid for complete repairs, even when he took his boat to a yard much cheaper than one he would have been justified in patronizing; but never is he called on in limine to prove his repair bill item by item, as is the shipwright, who sues on a contract.—*PENNSYLVANIA RAILROAD CO. v. DOWNER TOWING CORP.*, 11 F. (2d) 466.

**F**ERRY owner, using a landing under a lease from a city, is estopped to deny the city's title thereto.—*MCNEELY v. NATCHEZ*, 12 F. (2d) 3.

**P**ROVISION in a ship's bill of lading exempting carrier from liability for damage to cargo until actually loaded for transportation and after leaving vessel's tackles, and for damages by heating, or effects of climate, decay, putrefaction, ferment, rust, sweat, or by nature of goods or cargo, did not exempt the carrier from liability for damage to flour caused by working of weevil, and due to an unwarranted delay between time it was received and time it was loaded in vessel.—*UNITED STATES SHIPPING BOARD EMERGENCY FLEET CORP. v. TEXAS STAR MILLS*, 12 F. (2d) 9.

**T**HE duty of a ship to furnish a safe winch is correlative and equal with the duty of a stevedore to do the same thing, and neither may escape the consequences of an act of causative fault resulting in personal injuries to one at work to which he had been assigned.—*BUZYNSKI v. LUCKENBACH STEAMSHIP CO.*, 12 F. (2d) 92.

**A**TUG cannot, by contract with its tow, exempt itself from liability for negligence, but such a contract, though void, it was held in the case of *SEA LION*, 12 F. (2d) 124, may be material in determining the tug's negligence in losing its tow, as showing what the parties contemplated. It was further held that a tug cannot be held negligent for undertaking to do what circumstances and nature of contract with tow show was within contemplation of parties.

**V**ESSEL licensed for coasting trade is subject to seizure, on taking intoxicating liquors from a foreign ship at sea for purpose of importing them without permit or manifest, in violation of the custom laws, and is subject to forfeiture and sale; such vessel can be apprehended on high seas by officers acting within scope of their authority.—*ROSALIE M.*, 12 F. (2d) 970.



# Latest Marine Events in Pictures



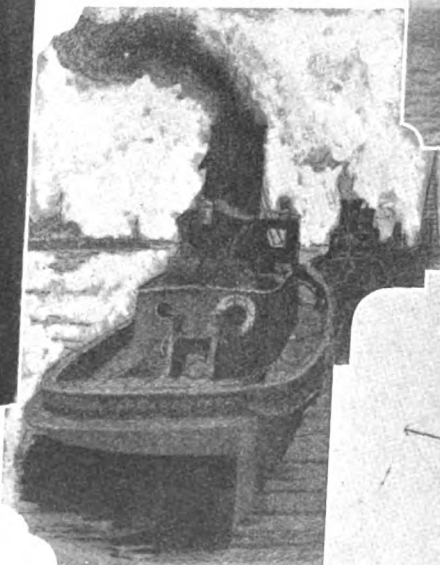
Permanent chapel two decks high on new French liner Ile de France. Alter rail of hand wrought iron of superb craftsmanship. Decorations are in keeping with the finest traditions of French architecture

Below—Largest whaling ship in the world, the C. A. Larsen, which is to take Commander Byrd and fifteen companions on an expedition to the South Pole. The bow is arranged with gates of sufficient size to ship the largest whale whole. It is then cut up within the ship



Thomas J. Kehoe, general agent in New York for the American Oriental Mail line  
Photo by Marceau

Below—Great Lakes tugs at Cleveland. Numerous tugs are needed to assist the great fleet of ore carriers From the Cleveland Plain Dealer, June 25. By Noel Holmes



The Malolo surrounded by tugs on her way into New York harbor after collision with Norwegian freighter on June 25

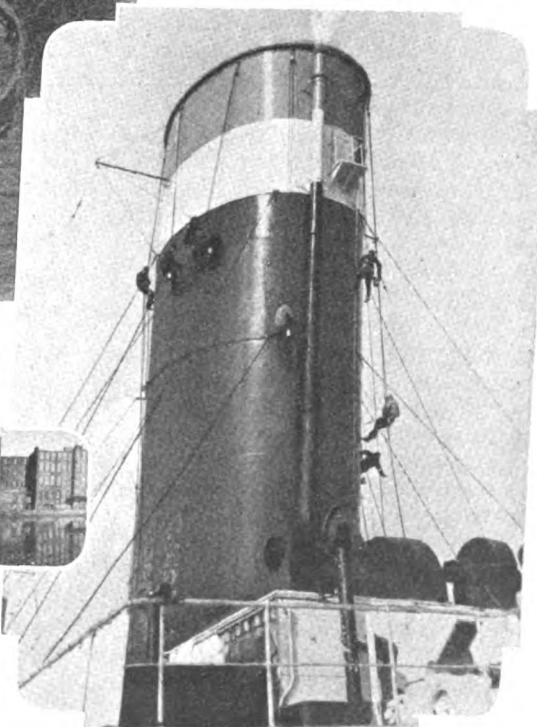
Outer harbor, Chicago. Tug Indiana, Great Lakes Towing Co., with steamer Finland (nee) Harry Coulby in tow



Below—Milwaukee harbor with steamer Nevada in foreground

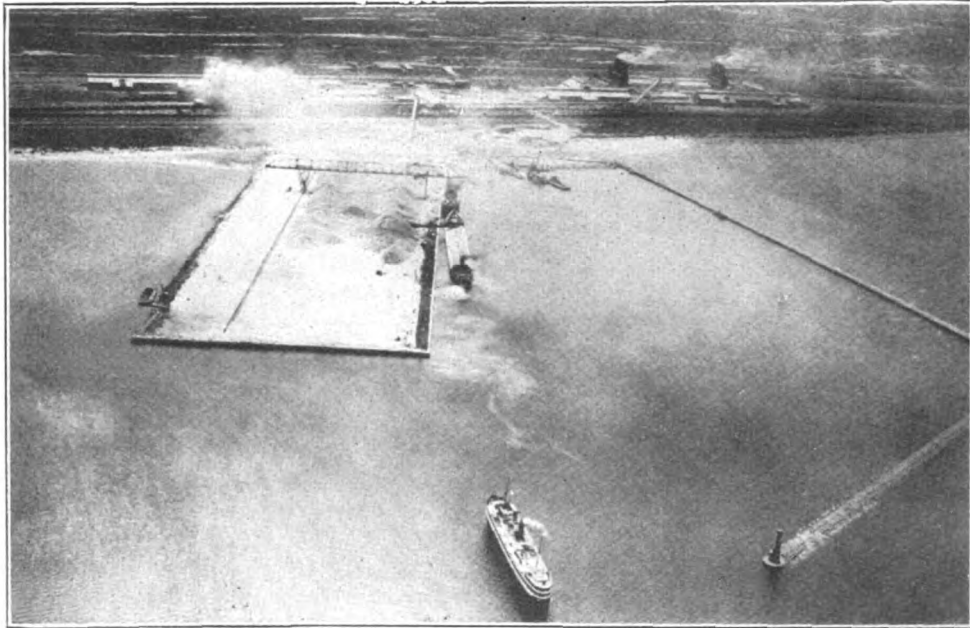


At Right—The gigantic size of the stacks of the Leviathan is evident from this view showing men painting one of them



# Dock Management Progress Section

How Successful Dock Operators Have Met  
Problems of Giving Best Service to Ships



Air View of New Buffington Harbor at Chicago Plant of Universal Portland Cement Co.

## Build New Harbor at Buffington to Cut Cement Handling Costs

IN THIS age, competition in industry is so keen that, obsolete methods and equipment must give away to any means by which cost can be reduced. As an example of the expenditure of large sums of money, not to increase production but to reduce cost the new Buffington harbor equipped with latest material handling machinery, is an extremely important development. The accompanying illustrations show the new harbor which is located on the Indiana shore of Lake Michigan two miles distant from Indiana Harbor, 6 miles west of Gary and 18 miles from the Municipal pier at Chicago. The harbor was formally opened to navigation by vice president Charles G. Dawes on June 9, in behalf of the owner the Universal Portland Cement Co.

There are many distinctions about the new harbor. It is the deepest harbor on the Great Lakes, it is one of only three private harbors on the Great Lakes, and is the only private

harbor built on Lake Michigan in twenty years. The other two such harbors are at Gary, Ind., and at Calcite, Mich.

The steamer T. W. ROBINSON, Capt. M. R. MacLean, Bradley Transportation Co., delivered the first cargo to Buffington Harbor. The ROBINSON docked at 6:10 a. m. May 10, 1927 and cleared at 2:45 p. m. on the same day after having delivered 9588 tons of limestone screenings from Calcite, Mich. One of the features of the formal opening of this harbor on June 9 was the presence of this steamer, one of the world's largest self-unloading boats, discharging its cargo of 12,000 tons of limestone.

### Latest Unloading Equipment

Ample space is provided for anchorage for several boats within the 55-acre basin which comprises the harbor. There is a 2000-foot rock-filled pier and a 1200-foot breakwater extending from the end of this pier to an elab-

orate lighthouse. An 1800-foot concrete dock 600 feet wide as shown in an accompanying sketch is able to accommodate several vessels and provides at the same time facilities both for unloading limestone from the quarries and for loading cement for shipment by water to all ports on the Great Lakes. In shore from the dock is located a 30-acre 1,000,000 ton storage yard for limestone and coal, built up with the sand dredged from the harbor.

One of the outstanding pieces of equipment for reducing handling costs is the electrically operated boat unloading bridge which it is said is the largest in the Chicago district. This bridge is 630 feet long and may be moved to any place along the dock. Equipped with a 10-ton clam-shell bucket this movable bridge or crane is capable of unloading standard steamers at the rate of 6 tons a minute. To further minimize handling costs there is a mile long electrically oper-



ated belt conveyor capable of carrying raw material from the dock to the plant at the rate of 6 tons a minute. A more complete description of the bridge and the conveyor system will be given later in this article.

The new harbor has been laid out on a magnificent scale but on a strictly business basis. That is, it is so designed that the largest freighters on the Great Lakes may deliver and receive cargo here in the most efficient manner possible. These largest size standard lake bulk freighters holding 12,000 tons of limestone can readily be unloaded by the overhead bridge while at the same time self-unloading boats are automatically discharging cargoes also of 12,000 tons each at a speed of approximately a ton per second, giving a maximum efficiency.

#### Purpose of Project Cost Reduction

B. F. Affleck, president of the Universal Portland Cement Co. in an article in the May number of *Factory* said in part: "Investing several million dollars in our plants without increasing capacity by a single barrel has so reduced manufacturing expense that the improvements will pay for themselves in a reasonable time. Included in this program is a \$2,000,000 harbor project at our Chicago plant. Take this harbor and dock development. We are not building it because we shall get any proprietary satisfaction from seeing impressive boats tie up at our private dock. We are constructing it because it will help reduce costs in two important ways. It will permit us to ship cement economically by boat and it will enable us to bring in bulky raw materials and feed them into our plant at a distinct saving over the cost of bringing the same materials by rail. Where we have been shipping cement exclusively by rail, we shall be able now to use both rail and water. Where we have been getting part of our stone by rail we shall now get all of it by boat from the quarry at Calcite, Mich., the largest quarry in the world. The large scale quarrying operations permit getting the stone out at low cost; the water haul results in a considerable saving in freight. The deepest harbor on the Great Lakes, one of the largest boats on the lakes, one of the heaviest boat-unloading

bridges in the Chicago district, a 55-acre harbor basin, a 30-acre storage yard holding a million tons of limestone or coal, a belt conveyor nearly a mile long, and a lighthouse with one of the brightest beacons on Lake Michigan are things we have had to supply in order to take full advantage of the economies inherent in our waterway program.

"Most of the stone will come in self-unloading vessels which are equipped with elevators to bring the material up out of the holds and load it onto belt conveyors to carry it into the new storage-yard. One of these boats alone can carry about 15,000 tons and can unload itself at about the rate of a ton a second.

"As some stone will come by standard steamers other than self-unloaders, we have provided a boat-unloading bucket bridge of unusual size and weight. Being movable to any point on the dock and having a 10-ton clam-shell bucket, it can pick up its generous bite of stone from any boat at the dock or from any point in the storage yard and deposit it on conveyors for speedy transportation to the plant."

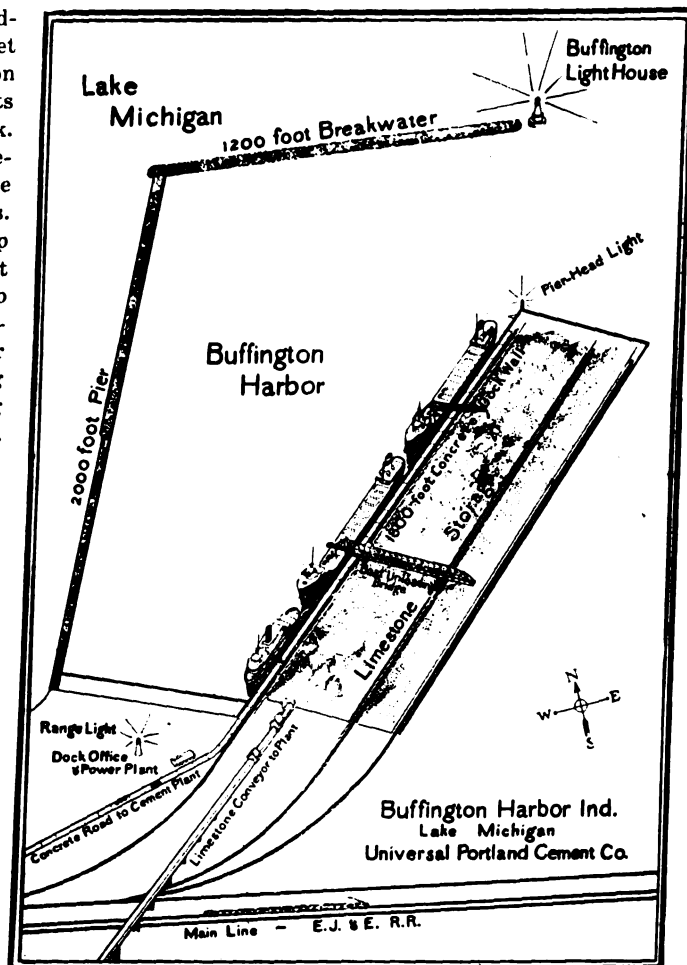
The company responsible for this port development, the Universal Portland Cement Co. had its origin in

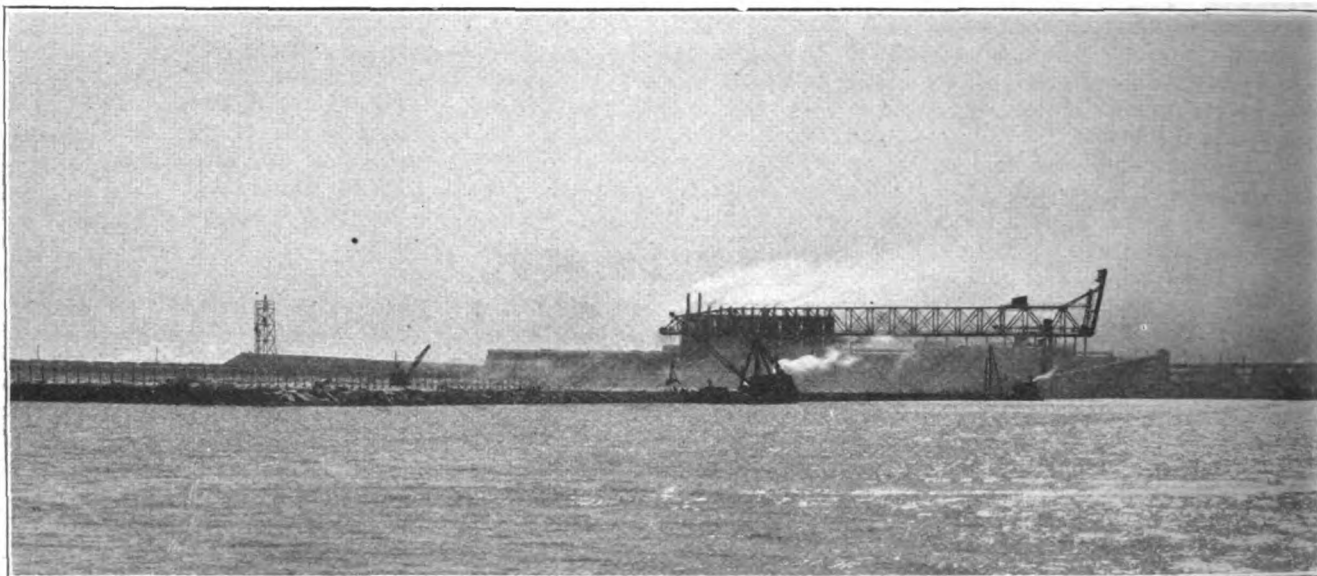
1896 as the cement department of the Illinois Steel Co., with a 500-barrel per day cement plant at North works on Wabansia avenue, Chicago. In 1900 a plant on the Calumet river at the South works of the Steel company was added and attained an output of 2000 barrels per day.

In 1903 construction was begun on the first unit of the plant at what is now Buffington between Indiana Harbor and Gary on the Lake Michigan shore. This plant was one of the first large industries to locate in the northwest corner of Indiana. At that time the population of Lake county Indiana was 48,092 and construction of the great steel works in Gary had not begun. Today the population of this section is 250,000.

#### Buffington Harbor Is Developed

In 1906 the cement department of the Illinois Steel Co. was reorganized as the Universal Portland Cement Co., a separate corporation subsidiary to the United States Steel Corp. A second unit at Buffington and also a plant at Pittsburgh were added in 1908. The third unit at Buffington was completed in 1912 and a plant was built at Duluth, Minn. in 1916. The present capacity of the company is about 60,000 barrels of cement per day. About half of this production comes from the three mills at Buffington. As described above, the new harbor at Buffington with ample depth of water, a large basin for ships, a long rock-filled pier, a substantial breakwater, a concrete dock wall and a dock and storage yard spanned by a traveling bridge carrying a trolley and a 10-ton bucket, provides the most efficient equipment for receiving raw materials and delivering the finished product by the cheapest mode of transportation, that is by water. To complete this cheap way of handling materials a conveyor running in a tunnel carries the stone from which the cement is made directly from the storage yard to the cement plant. At the end of the breakwater there is a concrete lighthouse 50 feet high equipped with a government standard fixed light and fog horn. This lighthouse known as the Buffington lighthouse stands more than one-half mile out in the lake lighting the entrance to the





BOAT UNLOADING BRIDGE AND PART OF THE HARBOR OF BUFFINGTON, FORMALLY OPENED BY VICE PRESIDENT CHARLES G. DAWES ON JUNE 9. THE HARBOR IS OWNED AND OPERATED BY THE UNIVERSAL PORTLAND CEMENT CO.

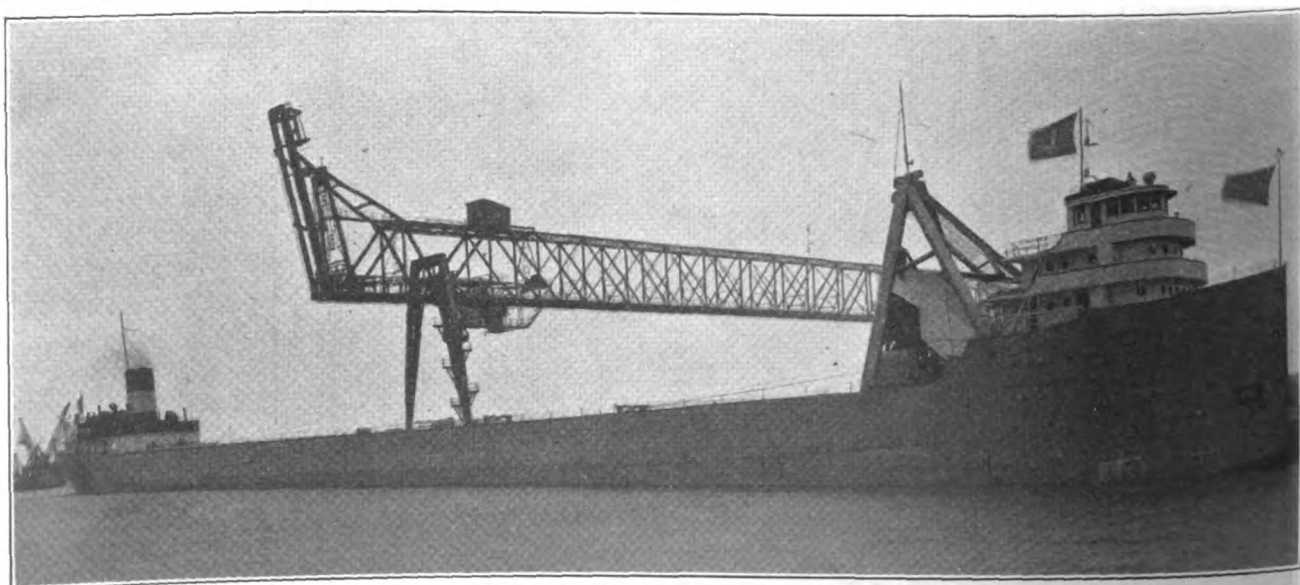
harbor. It is now in regular operation under government control. It is built from top to bottom of reinforced concrete and rests on a concrete base 30 feet in diameter and 3 feet thick which in turn is supported on a thousand tons of stone held together by a ring of interlocking steel piling driven into the lake bottom 27 feet below. The structure is 50 feet high and carries a 4000-candle power electric light which can be seen 13 miles away. It is controlled and operated from shore by switches with submarine cables conveying the current to the light. In its design and construction it meets with the full approval of the United States lighthouse officials of the twelfth district.

Calcite limestone is carried from Rogers City, Mich., to this harbor in freighters of the Pittsburgh Steamship

Co. and the Bradley Transportation Co. controlled by the United States Steel Corp. The vessels of the first company are standard lake bulk freighters and are unloaded by the traveling bridge on the dock. The freighters of the Bradley company are of the self-unloader type which discharge their own cargoes by means of belt conveyors and an elevator at the rate of a ton a second.

Buffington harbor was designed and its construction was supervised by the engineering department of the Universal Portland Cement Co. The dredging pile driving and concrete work were done by the Great Lakes Dredge and Dock Co. The traveling bridge was designed and built by the Mead Morrison Mfg. Co. and the American Bridge Co.; and the conveying system by the Robins Con-

veying Belt Co. When a visitor steps on the dock he is at once impressed by the boat unloading bridge which towers over his head and which is one of the heaviest in the Chicago district, weighing nearly 900 tons. Its center span is 385 feet; length overall, 640 feet; height rail to rail, 70 feet; bucket capacity, 10 tons, trolley speed, 800 feet per minute; hoist speed 225 feet per minute; moving speed of bridge, 75 feet per minute; the electric power is 500 volts and direct current; skewage, 5 degrees each side of center to permit holding one end at a certain point and to discharge at another; and equipped with an anemometer which cuts off power under high wind. This bridge also has automatic rail clamps and buffers; and apron hoist; clean-up grab for securing the material underneath the hatches; power operated lift beam



SELF-UNLOADER T. W. ROBINSON OF THE BRADLEY TRANSPORTATION CO. DELIVERING A CARGO OF 12,000 TONS OF LIMESTONE AT THE FORMAL OPENING OF THE NEW HARBOR AT BUFFINGTON





B. F. AFFLECK, PRESIDENT OF THE  
UNIVERSAL PORTLAND CEMENT CO.

for repairs; and is built completely of steel throughout. A. G. Carlson, chief engineer and S. J. Robinson, assistant chief engineer of the Universal Portland Cement Co. supervised the building of the bridge by the Mead Morrison Mfg. Co.

On the new dock, facilities are provided for receiving and storing large quantities of limestone which will all be brought there by water in the bulk freighters. At the shore end of the storage pile on the dock and running parallel to the dock a con-

crete tunnel extends out into the storage pile for 1200 feet. In this tunnel is located conveyor No. 1, the first unit of a series of bulk conveyors for transporting the limestone from the dock to the cement plant. In the roof of the tunnel a series of hoppers and gates are provided located 10 feet between centers.

The limestone is fed to the belt conveying system by means of a traveling belt feeder which traverses the entire length of the tunnel being mounted directly over conveyor No. 1 and supported by rails car-



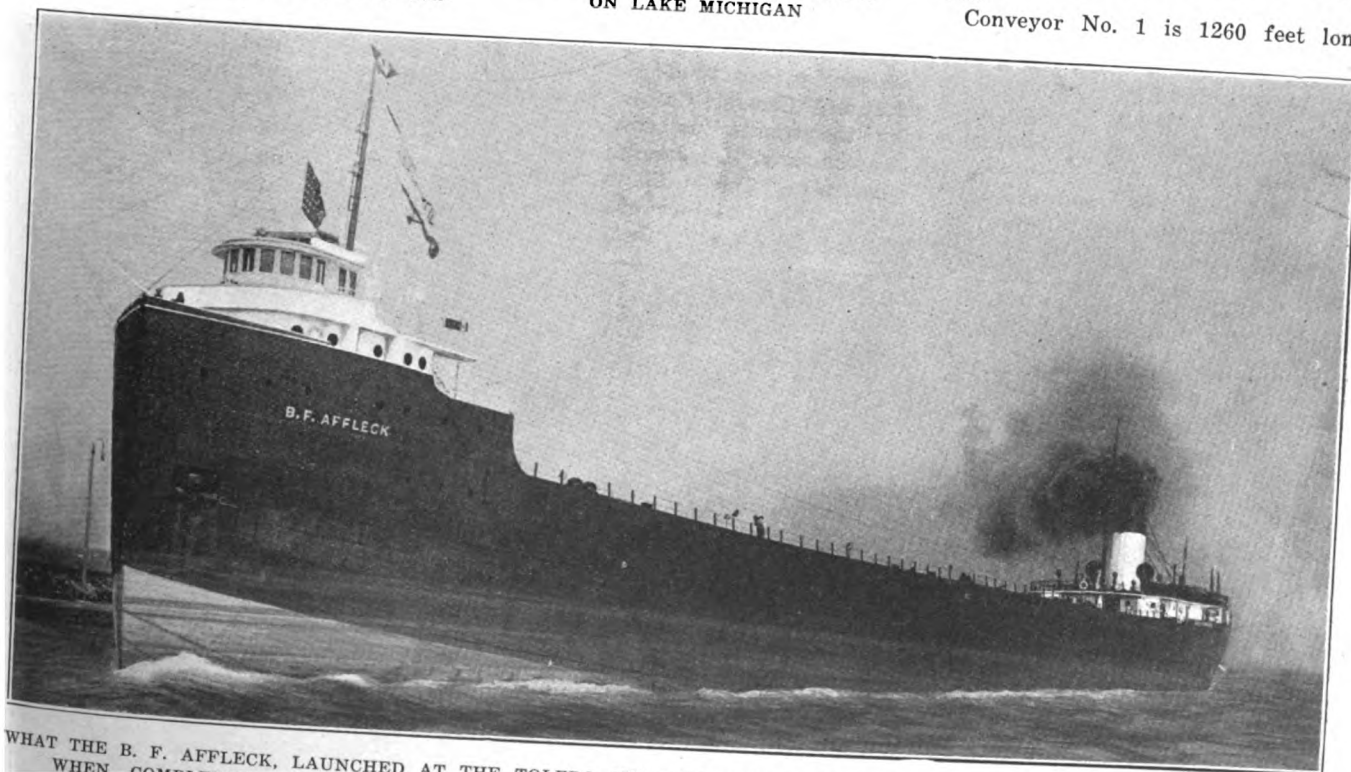
ALL CONCRETE LIGHTHOUSE AT ENTRANCE TO BUFFINGTON HARBOR,  
ONE OF THE BRIGHTEST BEACONS  
ON LAKE MICHIGAN



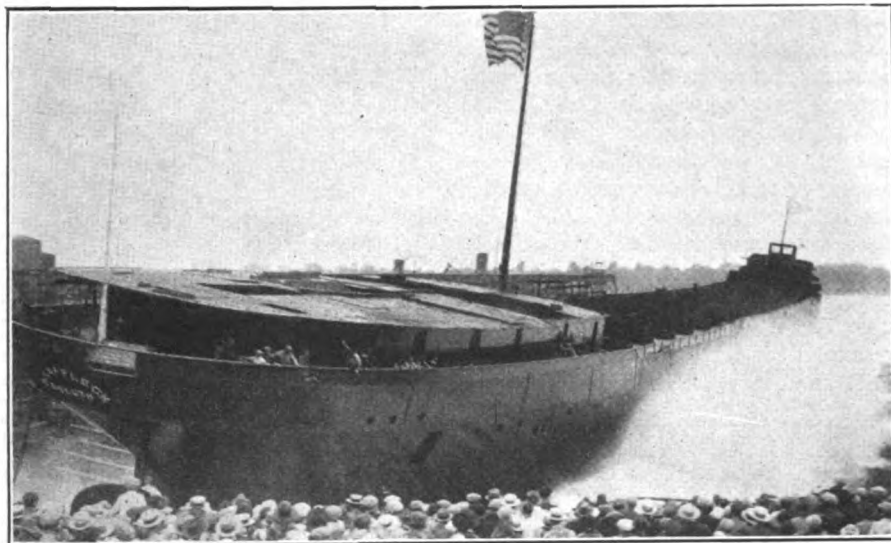
MRS. B. F. AFFLECK, SPONSOR OF THE  
BULK FREIGHTER SHOWN BELOW

ried on the same structure which supports the conveyor. On this traveling feeder is located suitable mechanism for opening the gates in the roof of the tunnel. It is not possible to open these gates except from the feeder car and only then when the hopper on the car is in the proper relation to the gate. This eliminates the possibility of flooding the tunnel with stone due to the opening of any gate except the right one.

Conveyor No. 1 is 1260 feet long



WHAT THE B. F. AFFLECK, LAUNCHED AT THE TOLEDO SHIPBUILDING CO., TOLEDO, O., ON JUNE 25, WILL LOOK LIKE WHEN COMPLETED—CAPACITY 12,000 TONS—SISTER VESSEL TO THE A. F. HARVEY, BUILT BY THE GREAT LAKES ENGINEERING WORKS AND NOW IN COMMISSION—OWNED BY THE PITTSBURGH STEAMSHIP CO.



**BULK FREIGHTER B. F. AFFLECK LAUNCHED AT TOLEDO JUNE 25**

and is level in the tunnel. When it leaves the tunnel it rises and delivers to conveyor No. 2 which is 1087 feet long. At the discharge end of conveyor No. 2 there is provided a two way chute with flop gate so that the limestone may be converted to conveyors No. 3 or 4 as desired.

Conveyor No. 3 is 454 feet long and has an automatic self-propelled and reversing tripper of heavy design. This tripper distributes the limestone into bins at No. 6 cement plant. Conveyor No. 4 is 1055 feet long and delivers to conveyor No. 5 which is 840 feet long. Conveyor No. 5 in turn delivers to conveyor No. 7 and provision is made at the junction of conveyors No. 5 and 7 to deliver to a future conveyor which will be No. 6. Conveyor No. 7 is 128 feet long and has a tripper for distributing to bins at No. 4 cement plant.

All of the belt conveyor machinery was furnished by the Robins Conveying Belt Co. and the system is de-

signed for a present handling capacity of 350 tons of limestone per hour. It is possible to provide for future increase in capacity. The conveyors are 30 inches wide and are equipped with roller bearing idlers of the Robins type. The troughing idlers are of the three pulley type fitted with Timken roller bearings and the return idlers are fitted with Hyatt roller bearings. Conveyors No. 3 and 5 are fitted with a Messiter electric conveyor weigher for recording the amount of stone handled. An electrical interlocking system provides the proper sequence in starting the conveyor and in case of trouble with any unit in the system automatically cuts out any preceding units.

More than any other person B. F. Affleck, president of the Universal Portland Cement Co. is responsible for the tremendous development of this company. On June 25 there was launched at Toledo Shipbuilding Co. a lake bulk freighter of 12,000 tons 604 feet long and 60 feet wide which

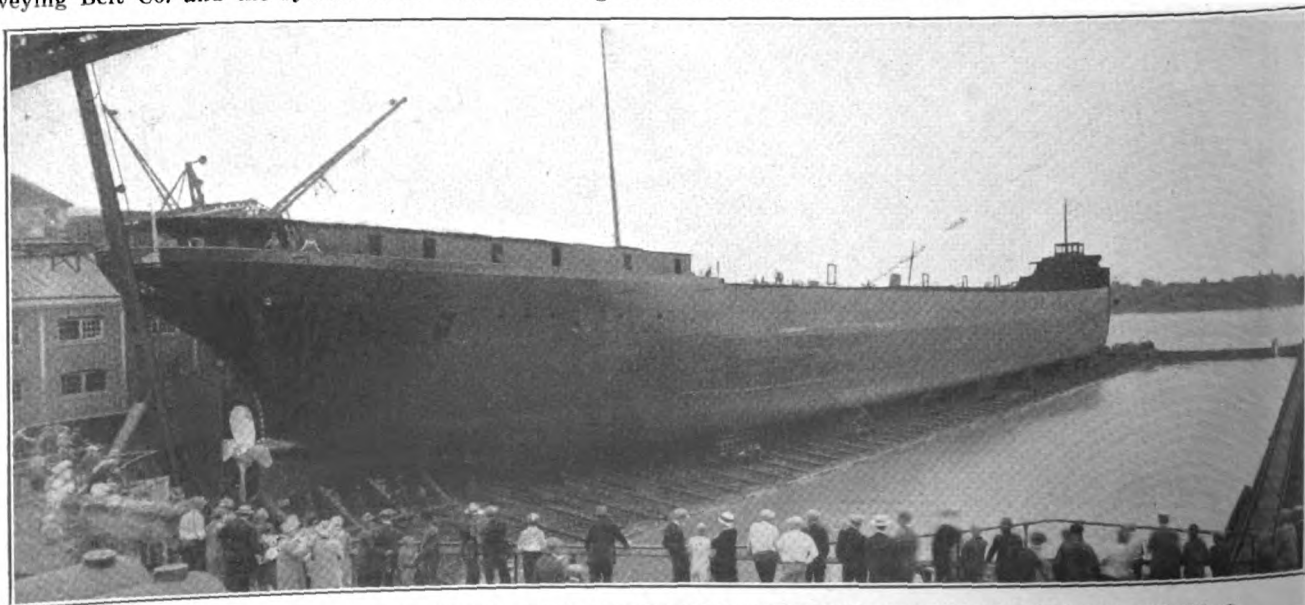
when completed will be one of the units in the lake carrying development of the Universal company under the direction of Mr. Affleck. It is therefore fitting that the new steamer should be named in his honor. When completed she will carry ore from the iron range at the head of the lakes to Lake Michigan and Lake Erie ports, limestone from Michigan to the steel and cement plants at Chicago, Buffington, Gary, Lorain and Duluth, and coal from points on Lake Erie, to ports on Lake Michigan and Lake Superior.

## Launch Large Freighter at Toledo Shipyard

The second bulk freighter under construction this year for the Pittsburgh Steamship Co., Cleveland the B. F. AFFLECK, shown in the accompanying illustrations, was launched at the Toledo Shipbuilding Co., Inc., Toledo, O. on June 25. The AFFLECK is a duplicate of the A. F. HARVEY recently completed at the yards of the Great Lakes Engineering Works, Detroit. Named in honor of B. F. Affleck, president of the Universal Portland Cement Co., the new steamer when completed in September will enter the general bulk trade and particularly the service to supply calcite stone to the Universal company's cement plant at Buffington, Ind.

The launching was attended by representatives of the Universal Portland Cement Co., the Pittsburgh Steamship Co. and the United States Steel Corp. and numerous guests. Mrs. B. F. Affleck acted as sponsor at the launching.

There is nothing out of the ordinary in the new freighter. She is designed to carry 12-



**THE B. F. AFFLECK JUST BEFORE LAUNCHING AT THE YARD OF THE TOLEDO SHIPBUILDING CO., TOLEDO, O.**



000 tons, and is a single deck bulk cargo vessel of standard type for the iron ore, coal, stone and if necessary, grain trade of the Great Lakes. Her molded dimensions are as follows: length overall, 604 feet; length between perpendiculars, 580 feet; width 60 feet and depth 32 feet.

Built on the transverse system with fore and aft floor channels her cargo hold is divided into three compartments into which open hatches of the sliding type. These hatches,

18 in number, measure 12 feet in a fore and aft direction and 38 feet athwartship and are spaced 24 feet between centers. The double bottom is 66 inches deep and at sides rises to the main deck level. It is divided into seven water tight compartments and the total capacity is about 7500 tons of water ballast.

Accommodations for officers and crew are in the houses at the ends of the vessel. The quarters are substantial and sanitary and are light

and well ventilated.

The propelling machinery consists of a vertical inverted triple expansion engine of about 2500 horsepower with cylinders 24½ x 41 x 65 inches with a 42-inch stroke. Steam is furnished by three single ended scotch marine boilers, 14 feet in diameter by 12 feet long. The allowable working pressure is 190 pounds per square inch. A complete line of the latest type of auxiliaries is provided as customary on vessels of this type.

## Use Diesel Tugs in Catalina Service

NO LESS than five diesel engined tugs have been acquired by the Wilmington Transportation Co., the steamship company owned by the Wrigley interests which operates between Catalina island and Los Angeles. Two of these diesel tugs use electric drive to the propeller. The other three are direct drive. All of the engines in the five boats were built by the Winton Engine Co., Cleveland. In the accompanying box their general dimensions and engine power are noted.

The LOUIE BLACK, built as were some of the others by the William Muller Shipyard, Wilmington, Calif. recently passed successful trial trips in the harbor of Los Angeles. As the new boat went down the channel on its first trip to the sea

the four other boats of the company served as an escort, presenting to the eye an interesting flotilla of diesel and diesel electric towboats.

Dropping her escort at the breakwater the new tug proceeded to Avalon where the 100 guests aboard had lunch at St. Catherines returning in the evening to Los Angeles. The accompanying illustration shows the

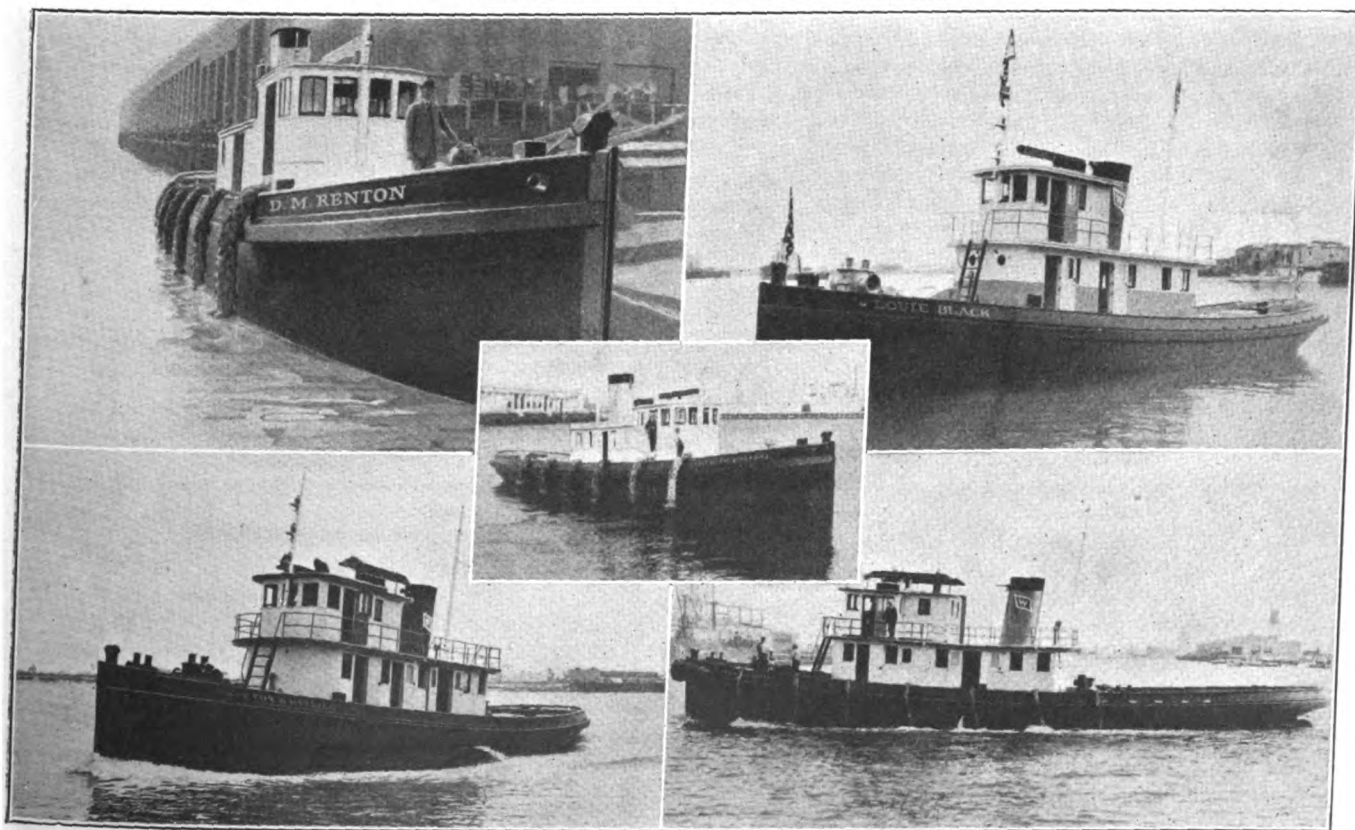
five boats of the fleet and it is evident from their appearance that they are both trim and sturdy.

The new boat was christened in honor of Capt. Louis Black a veteran of the Wrigley fleet and one of the best known men in the work boat and towing business in southern California. After meeting every requirement the BLACK is now in service in Los Angeles harbor.

### Diesel and Diesel-Electric Tugs of the Wilmington Transportation Company

Name	Length ft. in.	Beam ft.	Draft ft. in.	Diesel Engines		Drive
				No.	H. P.	
LOUIE BLACK .....	86-6	24	11-6	1	400	Direct
MILTON S. PATRICK.....	97-0	22	14-0	2	300	Electric
DAVID P. FLEMING.....	85-0	17	10-0	1	350	Direct
JOHN N. STEWART.....	97-0	22	14-0	2	300	Electric
D. M. RENTON.....	85-0	17	10-0	1	350	Direct

Engines are all of Winton make—Electric drive furnished by Westinghouse



# What the British Are Doing

Short Surveys of Important Activities in Maritime  
Centers of Island Empire

**C**ONDITIONS are rather irregular in the British shipbuilding industry, and although a good many enquiries are in circulation the actual business developing is disappointing. The improvement on the Clyde continues and there was a satisfactory increase during June in the output of new tonnage from Scottish yards. The busiest firm is Harland & Wolff of Belfast who has every berth occupied and other ships on order. The new White Star liner LAURENTIC was launched from this firm's yard in June as described in MARINE REVIEW for July. The Clyde output of 28 vessels of 40,465 tons during June is easily the highest this year. It compares with 24 vessels of 26,775 tons in May. The total for the half year consists of 100 vessels of only 145,171 tons as compared with 80 of 158,552 tons last year.

**A**MONG the new contracts booked last month Blytheswood Shipbuilding Co. Ltd. have a contract for two single screw passenger and cargo motor ships each between 10,000 and 11,000 tons deadweight for Liverpool owners; a Port Glasgow firm will build a steamer of about the same size for the same owners; William Denny & Brothers, Dumbarton, a twin-screw turbine steamer for the Southern Railway Co.; the Clyde Shipbuilding & Engineering Co. a cargo steamer of 7800 tons deadweight for Erhardt & Dekkers, Rotterdam, and a number of smaller vessels.

**S**WAN & HUNTER of Wallsend has booked an order for motor vessels of 6500 tons for Norwegian owners while Armstrong Whitworth & Co. is building three tankers, one for the Anglo-Saxon Co., another for the Anglo-Mexican Co. and a third for Norway.

**S**HIPWRIGHTS, woodworkers, painters, plumbers and electricians connected with the shipbuilding industry have signified their intention of signing a new conciliation agreement providing for the prompt settlement of disputes without a stoppage of work. The Shipbuilding Employers federation find it is in the best interests of both employers and workmen that arrangements should be made whereby questions arising may be fully discussed and settled without stoppage. The Federation of Engineering and Shipbuilding trades signed a similar agreement some months ago. The Boilermakers society were parties to the discussion which the five unions had with the employers, but despite the recommendation of their executive that the new scheme should be adopted the members of the Boilermakers society on a second ballot re-affirmed their decision not to adopt the new conciliation machinery.

**A**TUNNEL which will take five years to complete is being bored under the Mersey from Liverpool to Birkenhead and will cost about £5,000,000. The new tunnel will be

the biggest sub-aqueous one in the world. Upon the work of boring the rock which is in progress continuously night and day, 350 men are engaged. Before the work is completed it is estimated that a million tons of rock will be removed a distance of 2½ miles which will be the total length of the tunnel. It will be sufficiently wide to permit of four lines of traffic on the upper roadway while underneath this another passage way is being provided for two main lines of traffic. The tunnel will be lined with cast iron plates bolted together so as to be perfectly watertight and the total weight of iron thus utilized is 137,000 tons. The width of the river between the sea walls where the tunnel crosses is 3750 feet and the average depth of ground overlying the top of the tunnel below the river bed is about 30 feet.

**A**LARGE amount of work is in hand on the Clyde so that increased activity is promised for the second half of the year. Vessels ordered some time ago and held up by trade conditions have been or are being laid down and a fair number of new orders have been reported recently.

**W**ILLIAM DOXFORD, owner of the biggest shipyard on the Wear, which closed down in September 1924, is to re-open having secured an order for two 9000 tons cargo steamers whose machinery is also to be built on that river.

## What's Doing Around The Lakes

**L**EVELS of Lakes Huron and Michigan rose .29-foot from May 31 to June 30 this year, it is pointed out by the United States lake survey bureau in an assembly of Great Lakes statistics. This increase is said to be 25 per cent above normal for the season. Both lakes were 1.02 feet higher than the June stage a year ago, and only .88 feet below the average stage of June for the past

ten years. A similar rise for July was predicted by the lake survey bureau. Lake Superior on the other hand gained .37 foot, Lake Erie .25 foot and Lake Ontario .16 foot during June.

**T**HE finance committee of the Chicago board of aldermen has voted to defer action another year on the proposed \$900,000 appropria-

tion for dredging in Lake Calumet harbor in South Chicago, a project which is to be carried out by the city in connection with the Nickel Plate railroad's program there. In May, last year, the Chicago board of aldermen passed an ordinance giving the Nickel Plate 225 acres of submerged land and an exclusive belt line right-of-way around the proposed Calumet harbor in return for



a channel to be built by the road through undrained land.

\* \* \*

AN ACT passed by the Illinois legislature in its closing days last month repealed the Lake Calumet harbor act of 1921, under which the Nickel Plate ordinance was passed and an new act gives the city the power to levy a tax to build the harbor itself. The new act prohibits sale of harbor land but permits leases for 50 years, subject to revaluation of property leased at stated intervals.

LIGHT miscellaneous freight shipping on the Great Lakes is reported by some of the steamship companies to be in a seasonal lull, although the decline this summer is by no means abnormal. The falling off is in line with that of the past several years and is considered normal. Shipments from the fruit belt of southern and western Michigan have been started and indications are that the volume will fall not far behind that of a year ago. Last season tremendous shipments of fruit were made over the Great Lakes from the

Michigan fruit area. The season's peak fruit harvest still is several weeks off.

\* \* \*

FURTHER barriers to the long discussed Calumet harbor improvement have been removed by the approval in the main by the Illinois state waterway department to the plan agreed on by the city of Chicago and the Nickel Plate railroad for harbor dredging. The improvement contemplates the dredging of Lake Calumet and the Calumet river channel, thus granting direct access from Lake Michigan to the Mississippi.

## Ocean Freight Rates

Per 100 Pounds Unless Otherwise Stated

Quotations Corrected to July 19, 1927 on Future Loadings

NOTE: FREIGHT RATES STEADY WITH BUT SLIGHT CHANGE

New York to	Grain	Provisions	Cotton (H. D.)	Flour	General cargo cu. ft.	100 lbs.	Finished steel	REMARKS Freight Offered	From North Pacific Ports to	Lumber Per m. t.
Liverpool.....	2s 0d†	\$0.60	\$0.40	0.18	\$0.50	\$0.90	\$8.00T***	Very poor	San Francisco.....	\$4.50 to 5.00
London.....	2s 0d†	0.60	0.40	0.18	0.50	0.90	8.00T***	Very poor	South California.....	4.50 to 5.00
Oslo.....	\$0.18	0.45	0.50	0.30	0.42½	0.85	8.00T	Fair	Hawaiian Islands.....	9.00 to 10.00
Copenhagen....	0.18	0.45	0.50	0.30	0.50	1.00	8.00T	Fair	New Zealand.....	16.00 to 19.00
Hamburg.....	0.11	0.55	0.40	0.23	0.50	0.90	10.00T	Fair	Sydney.....	14.00 to 14.50
Bremen.....	0.10	0.35	0.40 to 65	0.18	0.50	0.90	10.00T	Fair	Melbourne-Adelaide....	14.00 to 15.00
Rotterdam and Amsterdam....	0.08	0.32½	0.40	0.23	0.45	0.80	9.50T	Very quiet	Oriental Ports.....	
Antwerp.....	0.07	0.32½	0.40	0.23	0.45	0.80	9.50T	Poor	Oriental Ports (logs)....	15.00 to 16.00
Havre.....	0.10	0.55	0.50	0.30	0.45	0.80	9.00T	Very quiet	Peru-Chile.....	13.50 to 16.00
Bordeaux.....	0.10	0.55	0.50	0.30	0.45	0.80	9.00T	Very quiet	South Africa.....	20.00 to 24.00
Barcelona.....		0.50	0.30	10.00 bags	—12.00T—		10.00T	Quiet	Cuba.....	15.00 to 17.00
Lisbon.....		0.75	0.50	8.00T bags	—23.00T—		8.00T	Quiet	United Kingdom.....	80s to 95s
Marseilles.....		0.65	0.40	7.00 bags	—23.00T—		8.00T	Quiet	United Kingdom (ties)...	
Genoa.....	0.19	14.25	0.50	9.00	—23.00T—		11.50T	Fair	Baltimore-Boston range..	\$14.00 to 15.50
Naples.....	0.19	14.25	0.50	9.00	—23.00T—		11.50T	Fair	Florida Range.....	No rates
Constantinople.	0.27	20.00T	0.85	0.40½	—24.00T—		11.50T	Quiet	Buenos Aires.....	15.00 to 17.00
Alexandria.....		20.00T	0.85	0.40½	—24.00T—		11.50T	Quiet	North of Hatteras.....	
Algiers.....		0.85	0.60	0.45	—23.00T—		11.50T	Fair	China.....	10.50 to 11.00
Dakar.....		17.00		15.50T	—23.00T—		11.50T	Very good	Japan.....	9.50 to 10.50
Capetown.....		18.00		13.00	20.00	13.00 to 18.00		Good		
Buenos Aires....		22.00T			20.00 to 22.00T†	8.00 to 8.80T		Very poor	Flour and Wheat	
*Rio de Janeiro		22.00T			20.00 to 22.00T†	7.00 to 7.70T†		Very poor	U. K. and Continent	
Pernambuco.....		22.00T		9.00T	—22.00T—†	9.70T†		Very poor	(gross ton).....	3½ 9d to 35s 0d
Havana.....	0.35*	0.50		0.35*	0.61	1.33	10.00	Fair	Oriental Ports (net tons)..	\$4.25 to 4.75
Vera Cruz.....	0.25	0.30	0.35	0.25	0.52½	1.05	0.30 to 0.35	Fair		
Valparaiso.....		1.07		0.70			10.00T	Fair		
San Francisco...		0.35 to 0.70		0.40 to 1.10			0.25 to 0.30	Fair		
Sydney.....		18.00T	1.25	18.00T	18.00-24.00T	9.00 to 12.—T		Quiet		
Calcutta.....				.12	—16.00T—		10.00T	Very quiet		

T—Ton. †Per quarter of 480 lbs. †Landed. ††Heavy products limited in length. \*Extra charge for wharfrage. \*\*Plus \$0.50 surcharge on all rates to Rio de Janeiro on account of congestion. \*\*\*Plus 15 per cent.

### Principal Rates To and From United Kingdom

Grain, River Plate to United Kingdom..	s	d	Pig iron, United Kingdom to New York or Philadelphia.....	s	d
Coal, South Wales to Near East.....	10	6	Iron ore, Bilbao to Cardiff.....	6	6
Coal, United Kingdom to Buenos Aires..	13	0	Iron ore, Huelva to Phila. or Balto.....	11	9
Manganese Ore, Poti to Philadelphia....	\$3.95				

### Bunker Prices

#### At New York

	Coal alongside per ton	Fuel oil alongside per barrel	Diesel engine oil alongside per gallon
Sept. 18 1926..	5.45@6.00	1.81½	6.05
Oct. 22.....	7.25@7.50	1.70½	5.86
Nov. 19.....	7.00@7.50	1.81½	5.87
Dec. 20.....	6.25@6.50	1.81	5.86
Jan. 19.....	5.90@6.15	1.81½	5.87
Feb. 18.....	5.25@5.50	1.81½	5.95
Mar. 18.....	5.25@5.50	1.81½	5.95
Apr. 19.....	5@5.50	1.75	5.71
May 19.....	5.65	1.81½	5.63
June 18.....	5.30	1.71½	5.39
July 19, 1927..	5.65	1.65	5.24

#### At Philadelphia

	Coal trim. in bunk per ton	Fuel oil alongside per barrel	Diesel Eng. oil alongside per gallon
Sept. 18 1926..	5.00@5.35	1.74@1.74½	6.14½
Oct. 22.....	7.25@7.50	1.74@1.80½	5.66@5.88
Nov. 19.....	7.00@7.50	1.80½@1.81	5.43@5.88
Dec. 20.....	5.50@5.75	1.80@1.90½	5.64@6.19
Jan. 19.....	6.20	1.95@1.95½	5.88@6.19
Feb. 18.....	5.24@5.50	1.90@1.91	5.64@6.13
Mar. 18.....	5.24@5.50	1.95@1.95½	5.38@5.88
Apr. 19.....	5.15@5.65	1.81@1.86	5.38@5.64
May 19.....	5.15@5.65	1.75½@1.76	5.14@5.38
June 18.....	5.00@5.25	1.70	5.12@5.14
July 19 1927..	5.00@5.25	1.65@1.70	5.10@5.12

#### Other Ports

Boston, coal, per ton....	\$7.86
Boston, oil, f. a. s., per barrel.....	\$1.82
Hampton Roads, coal, per ton, f.o.b. piers \$4.35 to 4.50	
July 5 → Cardiff, coal, per ton.....	14s 0d
London, coal, per ton.....	—s—d
Antwerp, coal, per ton.....	21s 6d
Antwerp, Fuel oil, per ton 80s 0d	
Antwerp, Diesel oil, per ton.....	95s 0d
British ports, Fuel oil.....	80s 0d
British ports, Diesel oil.....	95s 0d

## Harry F. Sailor Dies

Harry F. Sailor, manager of the Welin Davit & Boat Corp., Long Island City, N. Y. died suddenly of heart failure on July 1 at his home in Little Neck, N. Y. He was born in Penns Grove, N. J., about 54 years ago and came of old American stock, his early forbears being among the first white settlers of Delaware.

From his grandfather who was a well known boat builder he learned the rudiments of the laying down and the building of wooden boats. He

then entered Wm. Cramp & Sons Ship & Engine Building Co. as an apprentice and became a master boat builder and foreman of the shop.

Early in 1912 he came to the Welin Davit, Lane & De Groot, Co., Vernon avenue Long Island city, N. Y. to take charge of the plant. All types of metallic and wooden life boats and smaller power boats of both wood and steel were turned out by this company and its successors under Harry Sailor's supervision. The well known Welin mechanical davit for lift boats was another product of this plant as were also life rafts, balsa life buoys,

floats and other equipment used for saving life aboard ship.

Harry Sailor was beloved by all who knew him and he had a wide acquaintanceship among ship builders and steamship men. His loss will be keenly felt both personally and in a professional way for he was a leading practical exponent of life saving equipment in the United States.

The Forest City Steamship Co., Cleveland, has announced the appointment of Gordon B. Houseman as manager to fill the position held by Capt. F. A. Bailey who resigned.

# Compensation Given Harbor Workers

**B**Y ACT of the recent congress, compensation for injuries to longshoremen and other harbor workers while working on board vessels in harbor has been secured after efforts extending over more than ten years. Up to this time such workers, numbering several hundred thousand, have been in a very anomalous position. A longshoreman if injured on the dock received the benefits of the state compensation law, but if injured on the boat or in connection therewith his only redress was to sue under the so-called admiralty law, or under the common law where that law was competent to give a remedy, with consequent delay and uncertainty. Earlier attempts to remedy this situation were made by congress in 1917 and 1922 by amending the judicial code so as to confer the benefits of the local state compensation act in any given case to a harbor worker injured on a vessel, but both of these attempts were declared unconstitutional by the courts.

### Certain Exceptions Noted

The new act (approved March 4, 1927) covers harbor workers of all kinds, other than the master or members of the crew. It thus applies primarily to longshoremen, engaged in loading and unloading vessels, but also to more than a score of crafts or trades such as machinists, boiler makers, carpenters, plumbers, painters, upholsterers—whose work is called for on an extensive scale in modern vessels.

While the enactment of this statute must be regarded as a most desirable achievement, much regret is felt in some quarters over the failure to make the act cover the entire job of loading and unloading, with its con-

stant fluctuations of status from state to maritime coverage, and the difficulty of determining just at what point the change takes place. The power of congress to regulate commerce is undoubtedly available to make legislation covering the transactions on the dock and the bridge no less certain than its control over maritime affairs authorized by the enactment of the statute in its existing terms.

The act includes injuries "occurring upon the navigable waters of the United States (including any dry dock)," the purpose being to cover cases in which "workmen's compensation proceedings may not validly be provided by state law." In other words, it is intended to meet state laws at the point where they cease to function on account of maritime or admiralty jurisdiction, and care for the much-buffed and vaguely defined maritime worker other than the crews of vessels. Definitely excluded are 'a master or member of a crew of any vessel, or any person engaged by the master to load or unload any small vessel under 18 tons net.' Not only accidental injuries and death due thereto are included, but also occupational diseases and infections arising naturally out of the employment or naturally or unavoidably resulting from accidental injury. Injuries caused by the wilful act of a third person directed against an employee because of his employment are covered, but those due solely to the intoxication of the employee or his wilful intention to injure or kill himself or another are excluded.

### Seamen Are Not Included

Seamen proper were omitted due to their own insistence as expressed through their organization.

The statute is compulsory in its

application to employers and employees within its scope, and payments of the prescribed benefits must be secured by insurance or satisfactory proof of financial ability to make the required payments, followed by authorization from the administrative commission to pay such compensation directly. The liability under the act is exclusive, neither the injured workman nor his legal representative, next of kin, or anyone otherwise entitled being permitted to proceed in an action for damages unless the employer has failed to secure the payment of compensation as required by the act.

### Administered By Commission

A waiting time of seven days is prescribed, to be compensated for if disability lasts more than 49 days. The maximum weekly benefit is \$25 and the minimum \$8, or actual wages if less than \$8. Medical, surgical, and other attendance and treatment, hospital services, medicine, and apparatus as the nature of the injury may require are to be supplied. Benefits for disability or death may not exceed in any one case the sum of \$7500. There is a schedule of benefits for permanent partial disability, with provision for extension if healing requires a longer period than the period fixed in a separate provision of the act. Total disability is compensable during its continuance, and death benefits are payable until the remarriage of the spouse or the attainment of eighteen years of age by children. The percentage of wages payable is 66-2/3. It is obvious that cases of prolonged total disability and dependency may be affected by the maximum total allowance of \$7500.

The act is to be administered by the United States Employees' Compensation commission, but immediately by deputy commissioners who con-

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duct hearings, make investigations, etc., and render conclusions, which are subject to review by proceedings in the appropriate Federal courts. Deputy commissioners are to be appointed in accordance with the provisions of the civil service laws, the fixing of districts, the making of regulations, and general administrative proceedings being in the hands of the United States Employees' Compensation commission.

Provision is made for reports of accidents and records of injury and death. The commission is authorized to make studies and investigations with respect to safety conditions and causes of injuries in the employments covered by the act, and is directed to make recommendations from time to time to congress and to employers and insurance carriers as to the best means of preventing injuries. Access to places of employment is to be permitted for the purpose indicated.

The act carries standard provisions with regard to notice, filing, exemption of claims, procedure, third-party liability, etc. Rehabilitation is provided for, as well as second-injury benefits, funds therefor to be maintained by contributions of \$1000 each in case of death of an employee leaving no person entitled to benefits (one-half to each fund); fines and penalties also go to these funds.

Aliens receive the same benefits as residents, except that dependents in any foreign country are limited to the surviving wife or child or children or a dependent parent who has received support for the period of one year to the date of the injury.

## Shipbuilding Increases According to Lloyd's

With nearly three hundred thousand gross tons more of merchant vessels under construction throughout the world now than at the end of March, and with over 900,000 tons more than at the beginning of this year, a return to the pre-war volume of production may be under way, says a statement just issued by Lloyd's Register of shipping, based on returns from all maritime countries for the quarter ended June 30 last.

The rapid rise towards the close of the war, and for several years thereafter, was followed by a severe decline in output, which continued almost without a break until September of last year, when the returns showed only 1,850,000 gross tons building. From that point there has been a gradual gain, until at the end of this June, the returns showed a total only about 320,000 tons less than the June,

1914 figures, and one of almost half a million gross tons more than were building at the end of September, 1923.

	June 30, '27	Mar. 31, '27
United States	146,846	179,325
Great Britain & Ireland	1,390,388	1,216,932
Other countries	1,303,311	1,173,607
World total	2,840,545	2,569,864

The present total is 2,840,545 gross tons, as shown in the above table prepared for Lloyd's, which gives comparisons between the last two quarters, the figures being in gross tonnage.

## Steel Tug Ordered

A contract was awarded the Marine Iron & Shipbuilding Co., Duluth, late in May to construct a steel tow-boat for the United States engineers' office at Milwaukee.

A New York firm also awarded this company an order for six steel barges for use in the Erie canal. The barges are to be of steel, of dumpscow type and will be 100 feet long and 28 feet beam. The bid price was \$185,000.

## State Orders Two Tugs

The Buffalo Marine Construction Corp. on June 27 was awarded the contract for two steel ice breaking tugs. Three bids were received by Thomas S. Farrell, commissioner of canals and waterways at Albany on June 24. The Buffalo Marine Construction Corp.'s bid for the two tugs was \$88,500. The Great Lakes Engineering Works bid \$180,550 and the Todd Drydock Engineering and Repair Corp. bid \$260,045. According to the contract two steel tugs 77 feet in length overall, 72 feet in length of keel, 20 feet 9¼ inches beam and 10 feet 7 inches deep, of modern construction and complete in equipment in every detail, is required. Each tug will have one boiler 10 feet in diameter and 11 feet long operating at 180 pounds per square inch steam pressure. There will be one fore and aft compound steam engine of cylinders 14 inches and 38 inches in diameter with 28-inch stroke, in each boat. The boilers will be fitted for burning oil.

## Launch Self-Unloader at Detroit Yard

The Great Lakes Engineering Works at Detroit successfully launched the self-unloading cement carrier S. T. CRAPO on July 7. The new steamer is being built for the Huron Portland Cement Co. and is somewhat similar to the JOHN W. BOARDMAN. She is 400 feet long, 60 feet wide and 29 feet deep. Steam is supplied by scotch boilers and the main propulsive

unit is a 2000 indicated horsepower reciprocating steam engine. Coal is burned for fuel.

The new steamer is name for Stanford T. Crapo, secretary and treasurer of the Huron Portland Cement Co. She was christened by Miss Anita Boardman, daughter of John W. Boardman, vice president of the Cement company and also of the Huron Transportation Co. In accordance with old custom a bottle of champagne was broken on the bow of the steamer as she slid sideways into the water. When completed the S. T. CRAPO will join the fleet of the Huron Transportation Co. consisting of the steamers SAMUEL MITCHELL and JOHN W. BOARDMAN. She will ply between Detroit, Alpena, Mich., Cleveland, Buffalo, Milwaukee and Duluth.

## Launch Red-D Liner at Newport News

The steamer CARACAS, fourth vessel of that name to fly the American flag and the house flag of the Red "D" line, in its century of existence, was launched, June 30 at the yard of the Newport News Shipbuilding & Dry Dock Co. at Newport News, Va.

Mrs. Elizabeth A. Dallett, daughter-in-law of Frederic A. Dallett, president of the Red "D" line, was the sponsor at the launching. Her maids of honor were Miss Katherine Dallett and Miss Katherine Porter. Among those present were Mr. and Mrs. Dallett; Charles H. Reach, vice president of the line, and Mrs. Reach; Pedro R. Rincones, consul general of Venezuela at New York, and Mrs. Rincones; Russell Hall, passenger traffic manager, and a number of officials of the Red "D" line and the Newport News company.

The new CARACAS is 336 feet long, 51 feet beam and 18 feet loaded draft, with accommodations for 137 passengers. She is a twin screw liner, of 6500 tons displacement, an oil burner equipped with steam turbines, giving a speed of 13 knots. She is designed by Theodore E. Ferris. The CARACAS, which will be delivered early in September, has been constructed especially for the tropical trade, and will ply between New York, San Juan, Curaçoa, Puerto Cabello, La Guayra and Maracaibo, Venezuela.

With the delivery of the CARACAS, the Red "D" line will have a fleet of eight vessels, including the CARABO, LARA, MARACAIBO, FALCON, MERIDA, TACHIRO and TRUJILLO. The SAN JUAN, chartered from the Porto Rico line, will be returned to that company when the CARACAS is ready for operation.



# Equipment Used Afloat, Ashore

Safe Operating Electric Hand Saw—a New Cement Sack Hook—  
Steel Grating for Ships—Wall Fixtures—Sheave Sizes for Wire Rope

EVERY ship whether in port or at sea is a large or small community by itself. The plumber, carpenter and machinist as a part of the crew have many jobs to do and it is important that safe and efficient tools be provided. Almost every pier and dock also has one or more carpenters for necessary repairs and upkeep.

During the past few years portable electric tools have been developed to handle practically every operation; it is no longer necessary to waste a moment with hand tools. The efficiency of every worker has been increased.

Within the woodworking industry this development has been more remarkable than in many others. Even the carpenter's tool chest now includes a variety of electrically operated tools.

One of the most recent developments has been the electric hand saw—a tool designed to take the place of the ordinary hand saw. It can be taken from place to place and used as conveniently as a hand saw, but with much greater ease and with an increase in production to eight or ten times the volume of work possible in the same length of time.

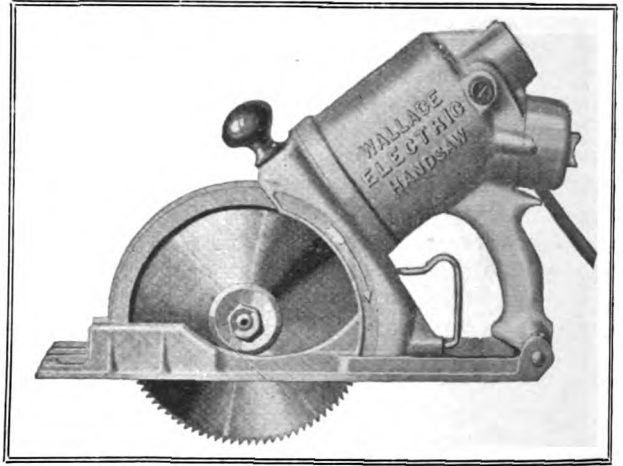
Like every other electric tool, the electric hand saw has gone through several stages of development. From a crude beginning this newest portable electric machine has been perfected by J. D. Wallace & Co., 134 S. California avenue, Chicago, specialists in the manufacture of portable electric woodworking machines, until now it is efficient, powerful, fool-proof,

and—above all—safe. A universal type of motor makes it possible to use electric hand-saw on either alternating or direct current, any frequency. Maximum efficiency has been secured by connecting the motor direct to the saw spindle. The saw is so designed that the motor can not be overloaded by putting in a larger saw blade than the power unit is intended to handle.

Particularly ingenious is the method of guarding. The guard is locked in a position which covers the blade at all points. When the operator wishes to cut, he simply releases the safety guard by means of a trigger conveniently placed near the grip. When the cut is finished and the saw is lifted from the work, the safety guard or shoe automatically drops and locks in position, covering the blade, and will not open again until released by the trigger. The blade is covered at all points above the point of work when the machine is in use.

This patented guard has been accepted as standard by the Underwriters' Laboratories—practical assurance that the machine will not be put out of service by safety commissions, or that it will be necessary to go to additional expense in it.

One handle is of the type found on an ordinary hand saw, the other the same as that used in guiding a hand plane. Both are close to the point of work, insuring accuracy and ease of operation. A splitter follows the saw blade, drops into the cut, and helps to guide the machine. An indicator in front makes it possible to follow a line, and the shoe is machined on one side to follow a guide rail.



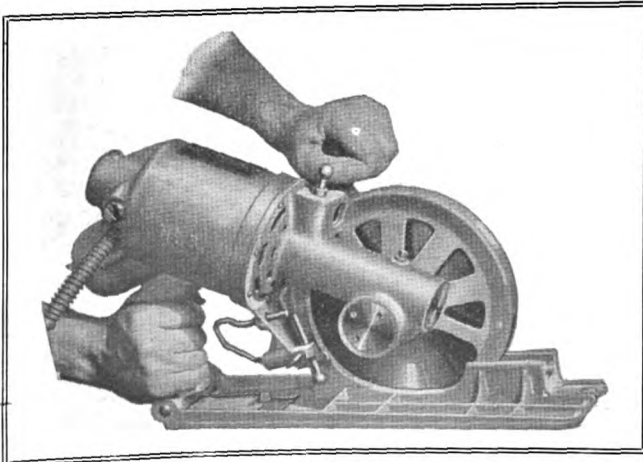
ELECTRIC HAND SAW AS IN OPERATION

With the depth gage which is provided, the saw can be set to cut accurately to any predetermined depth. A standard 8-inch round-hole blade is used—a standard article of commerce obtainable wherever blades are sold. Ball bearings are used throughout—all of the same size and of standard make. Gears run in grease, quietly and without overheating.

Carpenters and builders use it to cut concrete forms, rafters, joists, studding, sheathing, flooring, sash, doors, and stair stringers. Many save handling costs by using it to cut lumber on the pile. Manufacturers are adopting it in their shipping rooms for opening crates, making new boxes, and reclaiming old stock. It is a favorite means for testing wood in dry kilns—one firm even uses it with a dado head to remove old addresses from packing cases.

## New Cement Sack Hook Doesn't Tear Bag

Much hand work seems unavoidable in transporting many bulky commodities to and from docks. Cement shipped in sacks is a relatively low priced material which must be handled efficiently in order to prove a profit to the dock management, and cement sacks are awkward things to lift and move about by hand, yet nearly every loading and unloading operation calls for hand shifting at some point or other. There are two disadvantages in this connection almost prominent. One is the difficulty of grabbing the sack, which causes increased fatigue and slows down op-



A PORTABLE ELECTRIC HAND SAW THAT FITS THE  
HAND LIKE A PLANE

erations, and the other is the injury to the hands of workers due to contact with the cement, which oozes through the sacks. One dock manager has devised an ingenious hand hook which makes it possible for sacks to be shifted without their actually being touched, and under actual observation has increased manual efficiency by nearly 100 per cent.

The hook is designed with five fingers which are curved to fit the curve of the sack, and which, therefore, offer a minimum tearing effect due to the sharp finger tips. The weight of the sack when it is lifted rests largely against the smooth flat surface of the five fingers and the short prongs on each finger ( $\frac{1}{4}$ -inch) keeps hooks from slipping. Experience with the use of these hooks over a considerable period has failed to develop any noticeable injury to sacks.

## Steel Grating for Ships

Proper grating is of the utmost importance on board ship. Steel grating of one kind or another is widely used particularly in the engine rooms of ships. The quantity will of course vary with the size of the ship but it runs into a considerable item even for the smallest vessel. Shipyards have in the past sometimes built their own grating. However they can not be as efficiently built in a shipyard as they can in a plant specializing in this type of work.

The Blaw-Knox Co., Pittsburgh, have developed an especially high grade steel grating and flooring manufactured by an electro-forging process originated by this company in the manufacture of grating. This method produces a strictly one-piece grating. The grating is manufactured by placing twisted bars across the top of the bearing bars without slotting or cutting the metal. Resistance welding augmented by enormous pressure forges the bars into one piece where the metals cross. There are therefore, no holes or slots in this type of grating either before or after fabrication.

Another important feature about this type of grating, especially for a marine work, is that it gives perfect traction. It is impossible to slip because of the twisted cross-bar construction. The one-piece construction develops the full strength of the metal used in obtaining maximum loading capacity per pound of grating. As there are no holes, slots, angles or crevices left unprotected corrosive action is largely eliminated and it is

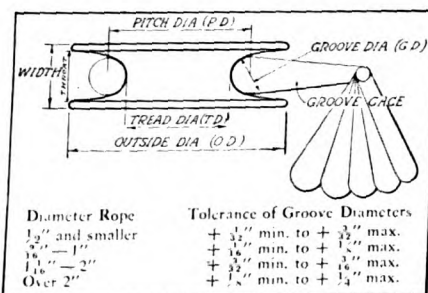
possible to thoroughly galvanize or paint it.

## Wall Fixtures

The Connecticut Electric Mfg. Co., Bridgeport, Conn., has developed a complete line of bakelite wall plates, convenience outlets, and combinations. Bakelite is said to be particularly suitable for marine installations as it is not affected by moisture, is chemically inert and will not fade or tarnish. It is shock proof, the dead front construction preventing shocks due to exposed metal parts. In finish these fixtures are rich brown egg shell. Special colors can also be furnished in addition to the standard brown and black.

## Sheave Size Affect Life of Wire Rope

No single element is more detrimental to wire rope than an improperly fitted sheave, according to Walter Voigtlander, rope engineer, the American Cable Co., Chicago. A pinching sheave, for instance, will do more



Proper Groove diameters for various sizes of wire rope

damage to a wire rope in one hour than a properly grooved sheave could in an entire week or more, or a sheave with too soft a tread will increase abrasion and grinding action to an extent that will cause premature breaking of the outer wires and loss of rope strength. Because of these facts and because sheaves are cheaper than good wire rope, it may be well to look to the sheave and auxiliary equipment if it is felt that the life and service from present rope is not what it should be.

Engineers and operators sometimes overlook the fact that by the time it becomes necessary to install a new rope, the old sheave will have become worn to such an extent that it will cause serious loss to the service of the new rope. Invariably excessive wear to the outer wires can be traced to the abrasive action of worn or too soft sheave treads. When installing a new rope, therefore, it is economy

to gage both the rope and the grooves of all sheaves and drums. If the groove diameter of any sheave is less than the actual calipered rope diameter, decreased service is bound to result if the condition is not remedied.

One of the simplest and most accurate methods of gaging sheave treads is through the use of a grooved gage as indicated in the accompanying illustration. If this device is used with care and if the tolerances given are strictly adhered to, there may be reason to expect longer and more satisfactory rope service. At the time attention is given to sheaves, it is well also to check up on their alignment.

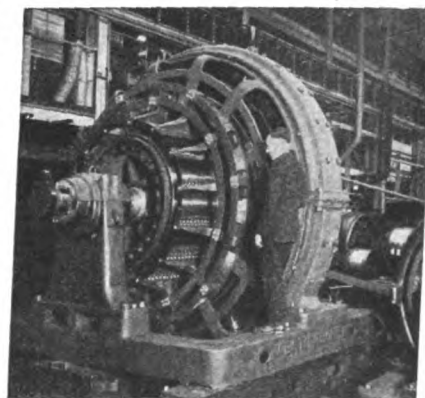
Misalignment will cause considerable wear to both rope and sheaves. In high-speed work, it is particularly necessary to maintain alignment of all equipment and to balance all sheaves.

## Powerful Motor Drives Pump on Dredge

A 2700 horse power motor, is used for driving a centrifugal pump in the new electric dredge CLACKAMAS for the Port of Portland. This motor was built at the East Pittsburgh plant of the Westinghouse Electric & Mfg. Co.

It is the largest motor of its kind ever built for use in driving a centrifugal pump and was made on a special order from the Port of Portland commission. This commission which is appointed by the governor of Oregon has charge of the navigation clearance of the Columbia and Willamette rivers, as Portland lies about 110 miles inland from the Pacific ocean.

The dredge for which the huge motor was prepared is the largest suction dredge ever constructed and



2700 HORSEPOWER MOTOR—FOR DRIVING CENTRIFUGAL PUMP—DREDGE CLACKAMAS

is the first large sized dredge to use the diesel electric engine. Four diesel engines of a combined rating of 3300 horsepower are used. Each one drives



a direct current generator which generates at 500 volts and the four are fed into a common bus from which the 2700 horsepower motor takes its supply.

The motor weighs 40 tons and its frame is 11½ feet in diameter and the shaft 12 feet in length. The suction pump which it drives is used mostly in the cutting down of sand bars in the Columbia river which has obstructed steamship traffic greatly in the past.

## Power Generating Plant in Lighthouse

The small light and power plant was originally designed and constructed to supply light to farm houses, barns and yards and supply power to operate the various small farm machines. Since its inception for use in supplying light and power to the farm, it has branched out, so that now its applications are numerous and various.

The most recent innovation in the field of the small power plant is one that is extremely important and yet is novel and unique. At most of the dangerous points in the various navigable waters of the United States, the government has installed a safe and



LIGHTHOUSE AT BUFFALO, N. Y.

accurate plan for determining the location of ships which pass by the various lighthouses. This is accomplished by means of radio fog signals, which are operated by electrical energy, supplied by light and power plants, manufactured by the Westinghouse Electric & Mfg. Co.

In order to insure against failure of these fog signals and consequently against serious shipwrecks which might result from such failures, it is essential that the power plants be rugged and sturdy and that they can operate under the most adverse conditions. For this reason the type chosen has a three-horsepower, four-cycle, single-cylinder, valve-in-head,

air-cooled engine, with a rating of 1½ kilowatts and 110 volts. It operates at 1200 revolutions per minute on kerosene or natural gas, and has a six-gallon fuel tank in the engine base. The control box is bolted to a generator frame with all live parts enclosed to protect the operator. The battery equipment in the plant consisted of 56 cells. The lighthouse keeper merely has to press a switch to start the plant in operation.

These light and power plants are now being installed at such points as the Galveston jetty, at Galveston, Texas, San Francisco harbor, Detroit river lighthouse, Mich., Cape Spencer light house, Alaska, Buffalo lighthouse, N. Y., and others making up a total of 46 in all.

## Electric Drive Capstan for River Boats

The accompanying illustration shows an application of modern speed reduction methods in securing the desired speed on the capstan of a Mississippi river boat. This outfit was developed by the Laclede Iron Works,

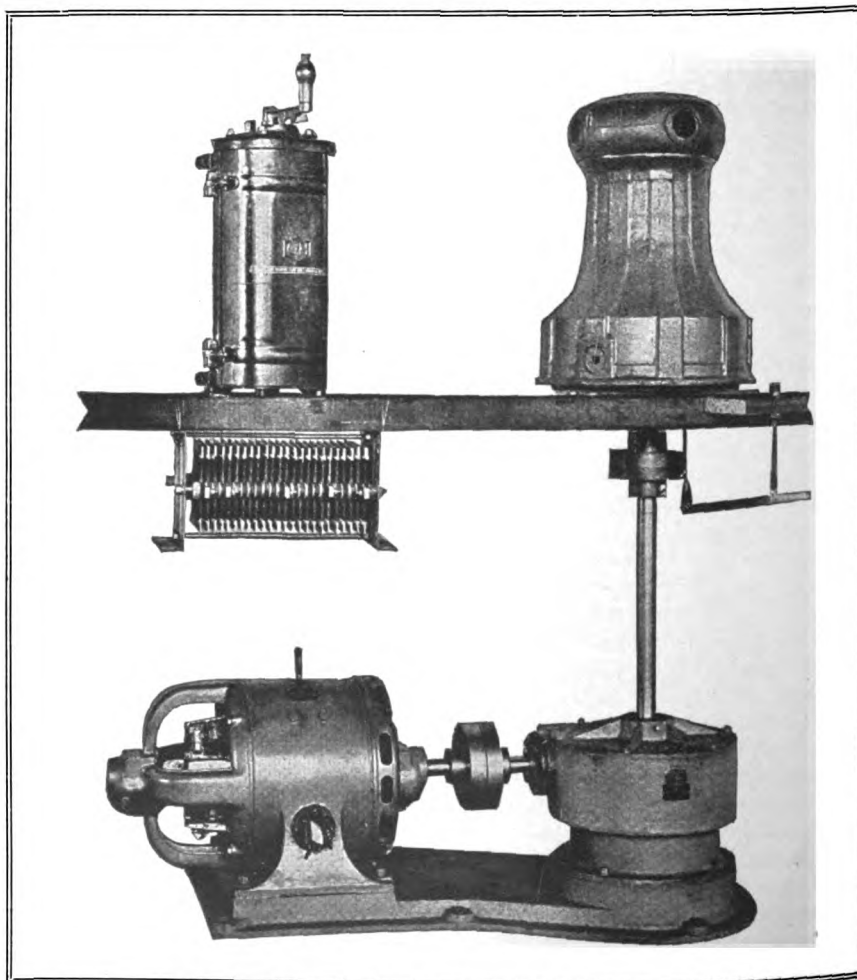
St. Louis, and is known as the Laclede Iron Works patented capstan, used for raising and lowering the anchor or lightening up on guy ropes.

A wide range of speed on the capstan and positive control by the operator are features which make it a valuable piece of equipment in the handling of vessel which operate on rivers or small bodies of water where frequent stops are necessary.

The motive power is supplied by an electric motor of standard design, direct connected through a flexible coupling to the high speed shaft of a vertical worm gear speed reducer, manufactured by Foote Bros. Gear & Machine Co.

The reducer is of the standard design recently developed by this company and largely used for drives of agitators and mixers and stirring equipment. Ball thrust bearings are provided at either end to absorb the end thrust and the worm gear is of English worm gear bronze also provided with ball thrust bearings to take up upward and downward thrusts.

The worm gear is rigidly keyed to



ELECTRIC DRIVE FOR CAPSTAN WITH PATENTED GEAR SPEED REDUCER MAKING CONTROL FLEXIBLE AT WILL FROM SLOW TO HIGH SPEED—CAPSTAN OF THE TYPE SHOWN HAS BEEN SUCCESSFULLY APPLIED TO MISSISSIPPI RIVER BOATS



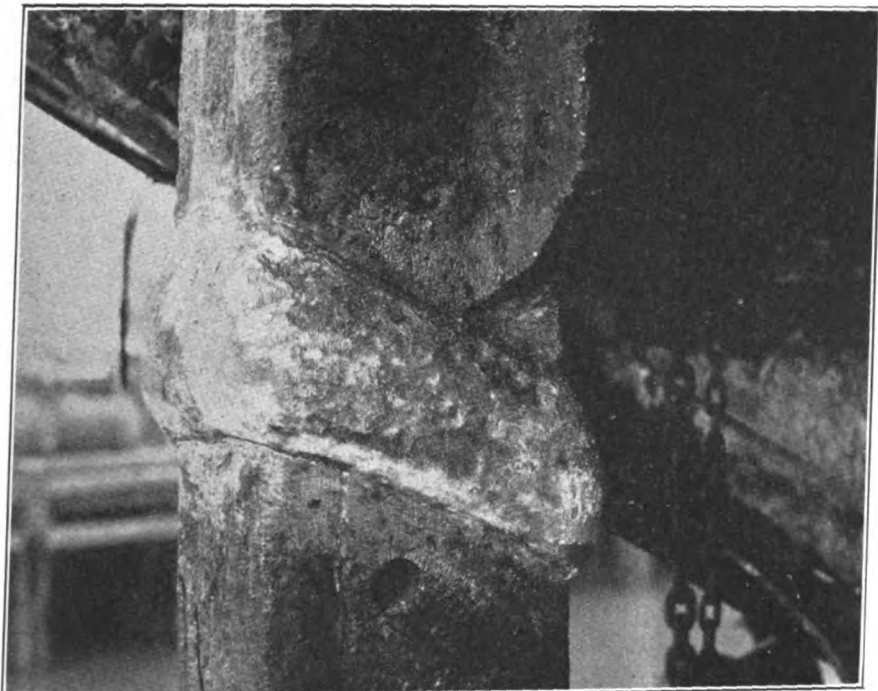
the slow speed shaft which in turn is directly connected through a flexible coupling to the vertical drive shaft of the capstan. The electrical controller is of the type used on electric street railway cars and provides for

a wide range of speed by cutting in or out sections of the grid resistance shown in the illustration.

The steps of the controller are quite small and by proper manipulation of the controller handles, the op-

erator is able to revolve the capstan at a high rate of speed for taking up slack or raising the anchor, or very slowly where the vessel is being warped gradually into a dock or landing.

## Difficult Weld Made on Norwegian Tanker



**A** DIFFICULT Thermit weld was carried out recently at the Perth Amboy Dry Dock Co., N. J., on the S. S. VAARLI, a Norwegian tanker in the asphalt trade between Venezuela and New York. The weld was made on the upper part of the stern frame which was fractured at the junction of the frame and outer plates through the two top rivet holes. The fractured section measured 8 inches by 10 inches and was situated in such an inaccessible place that a great deal of skillful maneuvering was necessary to place the thermit crucible in a position to pour the steel.

## Seattle's Marine Exhibit

By Robert C. Hill

**T**O IMPRESS upon the public mind the importance of the maritime industry, Seattle is to hold its first marine exhibit Aug. 8 to 13 while Aug. 12 has been officially designated as Marine day. This decision was reached after long consideration of the best way to emphasize the value of shipping not only to this port but to the surrounding territory.

The idea was first sponsored by the Maritime association of Seattle. This organization was formed several months ago by owners, ship operators and agents and many others associated more or less directly with shipping and its various branches. Its object is to discuss and act upon matters bearing upon the shipping industry as a whole, to improve conditions and to create ship-mindedness among the public at large. When the suggestion of Marine day was

first made the Maritime association quite properly agreed to make the necessary arrangements.

Marine day it was decided should be made to coincide with the Northwest Merchants exposition, an annual event in Seattle. This exposition occupies a week and attracts large numbers of merchants and other visitors from all parts of this state, Idaho and Oregon. Local manufacturers place their wares on exhibit and various forms of entertainment are offered the visitors. As a rule this annual event is held at the time of the visit of the Pacific fleet to Seattle so that it was considered appropriate to combine celebration of Marine day with the merchants' event. An attempt will be made to impress upon people from the interior the extent of Pacific coast shipping and its great importance to the population of the hinterland. The exhibits

of the maritime industry can be combined with the displays of manufacturers and merchants. The exposition will be held at Pier 40, one of the largest ocean terminals in Seattle owned by the Port of Seattle.

While the marine exhibits will be opened to the public for the entire week of Aug. 8 to 13, Friday, Aug. 12 will be devoted to a marine program. Special features are being planned by the committees in charge all designed to demonstrate to the general public that shipping on this Coast is the leading industry and must receive recognition as such. The marine exhibit, it is planned, will be one of the leading features of the exposition. More than fifty booths of the show will be occupied by maritime firms while a marine art exhibit will undoubtedly prove a feature. Rare ship pictures, ship models, cargo handling gear, dock operation, dry dock and repair facilities and everything else pertaining to the industry will be exhibited to the public.

Members of the marine industry are enthusiastic over the idea of letting the world know what it is doing to promote shipping.

# Reviews of Late Books

*Motorships*, by A. C. Hardy A. M. I. N. A.; cloth, 317 pages, 5½ by 8½ inches; published by D. Van Nostrand Co., New York and furnished by MARINE REVIEW, Cleveland for \$5.50 postpaid, and in Europe by the Penton Publishing Co., Ltd., Caxton House, London, for 27s 6d.

The sub-title of this book states that it represents an investigation into the characteristics of mercantile vessels propelled by internal combustion engines. It is in fact a concise study of the motorship with its many varied and argumentative problems. The author has gathered together many aspects and points of view connected with the installation of internal combustion engines to ocean going and seagoing vessels. He has commented on these views and has presented the whole in an orderly manner. The book is of value both as a work of reference and as a historical record for the years to come when it is desired to look back upon our present age of experiment.

Only brief mention is made in this book of the outstanding features of the principal internal combustion engine types as there are a number of excellent books which discuss this phase thoroughly. The main object is to set forth the characteristics and problems of the motorship itself. For the sake of clearness the subject is divided into four parts, viz, Construction, Arrangement, Evolution and Operation. The internal combustion engine, its principal characteristics and its method of operation and the principal engine room auxiliaries are first considered. Then something is said about the arrangement in the ship itself, of the engine and of the auxiliary machinery and the choice of the type of drive which should be used. Odd types of diesel engines such as the Scott-Still engine and different types of transmitted drive are described.

Having told about the various types of engines and the way these and their auxiliaries are arranged the author goes into the subject of operation. The effect of the internal combustion engine upon ship construction and tonnage measurement is explained. There is also discussion of the kind of transport and the corresponding type of ship to which the internal combustion engine

is applicable. A survey of fuels used and the methods of dealing with them on shipboard is also given. The book is fully illustrated with views of engines and layouts carefully selected to go with the discussions and descriptions in the text. The ship operator as well as the marine engineer will find this book useful in better understanding the internal combustion engine and its application to ships.

*From Slip to Sea*, by A. C. Hardy A. M. I. N. A.; cloth, 252 pages, 5½ by 8½ inches; published by James Brown & Son, Glasgow and furnished by MARINE REVIEW, Cleveland, for \$3.00 postpaid, and in Europe by the Penton Publishing Co., Ltd., Caxton House, London, for 15 shillings.

This book tells in plain nontechnical language and in a straightforward manner the whole story of the construction of a mechanical propelled ship from the time the raw iron ore enters the steel mills to the time the finished article, having completed the trials successfully, steams out to sea on her maiden voyage.

The author also wrote *Merchant Ship Types* and *Motorships* both interesting and much discussed works. The reader of the present book is taken from the ore dumps to the blast furnaces from bessemer converters to rolling mills.

The laying down of the keel is described and then the erecting of frames, plating and riveting of the hull, launching and fitting out. There are many line drawings, sketches and half-tone illustrations. No book to our knowledge has been written along similar lines and it should prove of value to students of practical shipbuilding, officers studying for higher grade licences and all who are connected with or interested in shipbuilding.

## Inaugurate Erie Service

The Cleveland and Buffalo Transit Co., Cleveland recently announced the opening of a service for passengers and freight between Cleveland and Erie, Pa. This service became effective July 5 and will be continued until Sept. 6. The schedule calls for sailings from Cleveland and Erie to Buffalo on odd dates July 5, 7, 9, etc. August, even dates, 2, 4, 6 etc. and

Sept. 1, 3, 5 etc. West bound sailings from Buffalo and Erie to Cleveland July 6, 8, 10 etc., August odd dates, 1, 3, 5 etc. and Sept. 2, 4, and 6 etc.

## Recent Sales of Ships

The United States shipping board has approved the sale of certain vessels, rejected the sale of others and is proposing to sell certain lines as follows:

**WEST HELIX and WESTMOUNT**, steel, steam, coal burning cargo vessels, the first of 522 deadweight tons and the second for 8682 deadweight tons to a new corporation represented by Robert W. Malone, Washington, D. C. for the lump sum of \$310,000. Payment is to be made, 10 per cent cash and the balance in ten equal annual installments. It is the intention of the purchaser to convert them to oil burners. At the time of the sale which was announced July 20, these vessels were laid up at Norfolk, Va.

**EASTERN VICTOR**, steel, steam cargo vessel of 8460 deadweight tons, equipped with reciprocating engine, scotch boilers and designed to steam at 10¼ knots on 29.8 tons of oil a day. Two bids were received for this vessel and both were rejected as follows: The Forest Transport Co., Portland, Ore. \$185,000 payable 25 per cent cash and balance in ten equal annual installments. Tankers Corp. New York, \$181,500 payable 10 per cent cash and balance in ten equal annual installments. This vessel will be re-advertised for sale by the Merchant Fleet Corp.

**GUARO**, steel steam cargo vessel, laid up at Staten Island, N. Y. The offer of Charles L. Hazelton, East Boston, Mass. of \$20,000 was rejected by the board as this figure is far below the recommended sales price.

**SHIPS SALE IN OCTOBER**—On July 12 the shipping board postponed action on the proposal to advertise three Pacific cargo services for sale until October, pending a report from the Merchant Fleet Corp. on the transpacific rate situation. The lines involved are the America Australia Orient the Oregon Oriental and the American Oriental Mail. Operating under the flags of these three lines is a total of 41 vessels aggregating about 375,000 tons.

**SALE OF FOUR LINES PROPOSED**—The Merchant Fleet Corp. was directed on July 12 by the shipping board to draw tentative plans and specifications for the sale of four transatlantic cargo lines and to give the board a report on the operating conditions of these lines. The lines are, American Scantic, from the north Atlantic to Scandinavian and Baltic ports; the American Palmetto, from the South Atlantic to Continental Europe; and the American West African, from north Atlantic ports to the West coast of Africa. These four lines operate 36 ships, aggregating about 294,680 tons.

## World Markets

**CITY OF BOSTON**, double deck steamship, 3702 net tons, 5385 gross tons, for about £50,000, to Norddeutscher Lloyd, Bremen.

**CONUS**, single deck steamship, 8340 deadweight tons, 5578 gross tons, for about £65,000, to Norwegian buyers.

**GRIQUA**, single deck steamship, 5400 deadweight tons, 3344 gross tons, for about £20,000, to "Adria" Soc. Anon. di Nav. Marittima. Fiume.

**KOSMO**, double deck steamship, 8900 deadweight tons, 5170 gross tons, for about £50,000, to Norddeutscher Lloyd, Bremen.

**LAMPAS**, single deck steamship, 8300 deadweight tons, 5505 gross tons, for about £70,000, to N. C. Evenson, Oslo.

**OCEANIA**, single deck steamship, 6800 deadweight tons, 3458 gross tons, for £37,500, to Lundegaard & Stray, Larund.

**AKERA**, single deck steamship, 7885 deadweight tons, 5277 gross tons, for about £60,000, to J. W. Prebensen, Risor, Norway.

**MARINULA**, double deck steamship, 9640 deadweight tons, 7513 gross tons, for about £92,500, to Martin Mosvold, Christiansand.

**STROMBOLI**, single deck steamship, 8300 deadweight tons, 5311 gross tons, for about £42,000, to Glasgow buyers.

# Marine Business Statistics Condensed

## Record of Traffic at Principal American Ports for Past Year

### New York

(Exclusive of Domestic)				
Month	—Entrances—		—Clearances—	
	No. ships	Net tonnage	No. ships	Net tonnage
June, 1927	498	2,093,540	566	2,334,128
May	525	2,167,154	539	2,179,208
April	487	2,048,786	565	2,353,404
March	460	1,936,478	515	2,074,694
February	408	1,679,912	468	1,962,365
January	417	1,736,991	455	1,868,270
December	466	1,867,630	548	2,171,938
November	454	1,909,756	477	1,885,401
October	486	1,954,853	542	2,301,465
September, 1926..	492	2,087,694	543	2,270,398

### Baltimore

(Exclusive of Domestic)				
Month	—Entrances—		—Clearances—	
	No. ships	Net tonnage	No. ships	Net tonnage
June, 1927	125	375,204	125	376,019
May	112	333,395	117	340,274
April	131	409,145	127	377,039
March	120	355,162	117	323,893
February	100	308,501	95	301,401
January	117	362,553	126	361,277
December	245	722,141	269	783,058
November	292	818,707	298	853,723
October	271	791,999	261	783,263
September, 1926..	230	678,127	224	670,465

### New Orleans

(Exclusive of Domestic)				
Month	—Entrances—		—Clearances—	
	No. ships	Net tonnage	No. ships	Net tonnage
June, 1927	248	606,501	267	750,937
May	277	640,252	269	627,452
April	262	642,846	268	664,467
March	276	712,619	278	695,933
February	240	632,092	249	628,762
January	240	697,039	244	712,284
December	259	745,636	266	755,204
November	253	731,871	238	685,253
October	236	673,606	250	721,608
September, 1926..	226	620,095	240	666,778

### Philadelphia

(Including Chester, Wilmington and the whole Philadelphia port district) (Exclusive of Domestic)				
Month	—Entrances—		—Clearances—	
	No. ships	Net tonnage	No. ships	Net tonnage
June, 1927	95	213,122	66	180,861
May	88	196,606	47	86,214
April	86	194,135	52	123,179
March	96	223,255	58	131,147
February	81	190,536	48	126,619
January	79	208,354	59	167,258
December	145	373,902	129	341,421
November	168	429,403	139	377,016
October	145	370,112	128	329,420
September, 1926..	107	234,144	82	196,434

### Norfolk and Newport News

(Exclusive of Domestic)				
Month	—Entrances—		—Clearances—	
	No. ships	Net tonnage	No. ships	Net tonnage
June, 1927	34	61,041	82	190,228
May	27	56,458	70	179,658
April	23	54,983	77	209,869
March	32	87,970	98	264,863
February	31	88,928	77	232,403
January	49	134,238	118	350,311
December	216	636,483	254	781,545
November	184	527,290	281	782,914
October	252	683,297	307	850,828
September, 1926..	252	705,604	281	766,503

### Charleston

(Exclusive of Domestic)				
Month	—Entrances—		—Clearances—	
	No. ships	Net tonnage	No. ships	Net tonnage
June, 1927	25	67,366	24	62,132
May	26	79,355	24	63,862
April	23	60,557	26	68,555
March	28	84,155	31	85,476
February	27	81,829	33	158,088
January	33	96,054	31	77,315
December	33	94,427	39	102,724
November	39	114,449	39	103,266
October	11	32,323	15	40,127
September, 1926..	22	65,872	34	98,447

### Boston

(Exclusive of Domestic)				
Month	—Entrances—		—Clearances—	
	No. ships	Net tonnage	No. ships	Net tonnage
June, 1927	155	844,548	99	242,957
May	130	818,196	100	262,982
April	120	343,388	72	201,868
March	95	301,413	59	187,556
February	83	277,063	40	119,246
January	88	266,147	51	159,241
December	97	286,013	52	170,314
November	89	275,245	56	177,876
October	109	300,921	58	171,933
September, 1926..	105	308,189	83	246,136

### Savannah

(Exclusive of Domestic)				
Month	—Entrances—		—Clearances—	
	No. ships	Net tonnage	No. ships	Net tonnage
January, 1927	39	96,410	34	96,410
December	38	107,763	36	104,445
November	40	97,689	33	102,822
October	50	115,821	39	98,521
September	46	120,271	42	113,706
August	42	97,563	30	76,030
July	33	88,673	27	71,040
June	43	106,733	36	95,000
May	36	96,175	32	85,198
April, 1926..	37	104,323	36	105,821

### Galveston

(Exclusive of Domestic)				
Month	—Entrances—		—Clearances—	
	No. ships	Net tonnage	No. ships	Net tonnage
February, 1927	43	114,628	82	248,364
January	47	146,318	97	318,609
December	56	147,040	103	302,474
November	64	180,917	118	359,948
October	47	112,816	118	352,203
September	52	139,219	127	368,302
August	55	129,477	131	389,432
July	60	164,241	116	352,290
June	53	119,497	72	185,444
May, 1926	28	65,578	61	180,449

### Portland, Me.

(Exclusive of Domestic)				
Month	—Entrances—		—Clearances—	
	No. ships	Net tonnage	No. ships	Net tonnage
June, 1927	24	81,714	25	84,855
May	24	38,244	22	37,246
April	21	37,182	21	37,114
March	23	63,195	27	73,944
February	23	65,826	21	59,178
January	25	59,155	26	66,791
December	32	71,748	34	77,400
November	20	34,092	20	34,917
October, 1926..	20	48,468	23	52,900

### Key West

(Exclusive of Domestic)				
Month	—Entrances—		—Clearances—	
	No. ships	Net tonnage	No. ships	Net tonnage
June, 1927	84	97,585	85	97,535
May	105	113,030	106	115,564
April	78	79,818	74	75,913
March	80	91,602	75	93,700
February	90	101,179	84	102,571
January	89	116,112	89	119,191
December	92	113,985	87	104,448
November	97	116,985	97	115,032
October	78	92,987	79	96,718
September, 1926..	81	91,321	80	88,844

### Los Angeles

(Exclusive of Domestic)				
Month	—Entrances—		—Clearances—	
	No. ships	Net tonnage	No. ships	Net tonnage
May, 1927	161	470,471	138	456,885
April	179	477,762	173	441,374
March	156	451,423	165	442,022
February	144	418,190	144	404,753
January	137	420,426	138	381,692
December	155	438,464	123	386,004
November	184	439,736	138	387,937
October	187	448,038	155	421,807
September	151	406,314	211	386,739
August	143	458,240	151	399,349
July, 1926	127	460,296	103	352,367

### Providence

(Exclusive of Domestic)				
Month	—Entrances—		—Clearances—	
	No. ships	Net tonnage	No. ships	Net tonnage
June, 1927	3	12,559	5	15,930
May	9	36,882	6	25,950
April	7	28,776	5	18,903
March	7	26,065	7	25,780
February	3	10,380	6	23,696
January	3	9,632	6	20,091
December	5	17,666	5	19,074
November	2	7,689	2	7,690
October	7	23,091	8	29,815
September, 1926..	5	20,651	5	22,324

### Mobile

(Exclusive of Domestic)				
Month	—Entrances—		—Clearances—	
	No. ships	Net tonnage	No. ships	Net tonnage
June, 1927	97	206,410	84	165,649
May	114	237,650	103	205,876
April	107	240,273	108	218,246
March	107	217,848	98	197,395
February	99	249,158	86	199,907
January	96	224,819	83	191,752
December	82	164,129	82	174,618
November	90	200,301	83	182,839
October	98	213,430	99	211,785
September, 1926..	84	179,225	75	165,838

### San Francisco

(Exclusive of Domestic)				
Month	—Entrances—		—Clearances—	
	No. ships	Net tonnage	No. ships	Net tonnage
June, 1927	154	556,225	140	526,976
May	148	545,414	137	510,560
April	141	531,380	137	518,577
March	145	555,324	148	586,354
February	147	561,214	138	513,253
January	133	497,560	141	522,806
December	134	520,962	134	500,347
November	123	543,103	139	512,671
October	145	532,024	153	575,263
September, 1926..	170	568,323	156	561,513

### Portland, Oreg.

(Exclusive of Domestic)				
Month	—Entrances—		—Clearances—	
	No. ships	Net tonnage	No. ships	Net tonnage
June, 1927	24	91,554	33	118,631
May	24	86,618	28	98,277
April	31	120,431	44	159,247
March	21	78,379	31	106,768
February	15	63,320	28	106,355
January	29	102,736	39	134,127
December	34	131,426	56	213,861
November	34	135,455	48	173,820
October	41	151,013	59	217,745
September, 1926..	33	126,772	56	201,152

### Seattle

(Exclusive of Domestic)				
Month	—Entrances—		—Clearances—	
	No. ships	Net tonnage	No. ships	Net tonnage
June, 1927	38	159,687	39	162,632
May	41	177,869	42	169,083
April	46	186,581	49	185,593
March	39	159,034	44	175,937
February	40	170,776	45	195,692</



# Late Flashes On Marine Disasters

Brief Summaries of Recent Maritime Casualties—  
A Record of Collisions, Wrecks, Fires and Losses

NAME	DATE	NATURE	PLACE	DAMAGE RESULTING	NAME	DATE	NATURE	PLACE	DAMAGE RESULTING
Alvina	June 6	Ashore	M. of Cape Race	Not stated	Kyphissia	July 3	Stranded	Willemstad Harbor	Floated
Asama Maru	May 30	Stranded	Sw Saghali	Not stated	Kilbane	June 19	Fire	Oran	No. 1 hold
Amasia	June 9	Struck pier	Sandon Basin	Slight	Kelvinside	June 4	Disabled	Londonberry	Boiler
A. M. Byers	June 28	Collision	Toledo	Plates; hawse pipe	Kasado Maru	June 14	Ashore	Osaka	Floated
Agwistar	June 23	Aground	Romer Sholas	Floated	Lancaster Castle	July 2	Aground	Port Swettenham	Floated
Andalusite	June 14	Ashore	Humber	Floated	Lingan	June 19	Collision	Quebec	Starboard side
Ahmedi	June 10	Aground	Bombay	Floated	Lestris	June 18	Collision	Antwerp Roads	Not stated
Achates	June 7	Struck sub. object	Vancouver	Not stated	London	July 1	Collision	Bugsbys Reach	Not stated
Abron	June 16	Aground	Colon	Floated	Lorain	July 1	Collision	Sea Reach	Port side
A. Ziesing	July 5	Struck	Soo River	Rudder;	Munloyal	June 16	Collision	New Orleans	Damaged
Atlantica	June 18	Struck quay wall	Cardiff	sternpost	Maria L.	June 5	Collision	Nr. Oros Chan.	Slight
Amiral Gigault	June 21	Aground	Bordeaux	Engines	Meg Merrilies	June 8	Aground	Taylors Bank	Floated
De Genouilly	June 30	Fire	Off Malmo	Holds	Mitchell	June 25	Struck obs.	Lake Huron	Prop. blade
Albania	June 27	Collision	Huron	Not stated	Malabar	June 23	Explosion	Brooklyn	Slight
B. Lyman Smith	June 23	Disabled	Seattle	Rudder	Munoreans	June 25	Disabled	Off Governors' Isl.	Engine
Bearport	June 13	Aground	Kolvisto	Not stated	Margery	June 29	Sank	Philadelphia	Raised
Bluestone	June 12	Collision	Boston	Slight	Manor	June 30	Collision	Del. Breakwater	Starboard side
Brewster	June 30	Collision	Off Cape aux Oies	Sank	Munoreans	July 1	Struck dock	Miami	Slight
Baie Saint Paul	June 30	Disabled	Astoria	Engine	Matthew S. Greer	June 30	Disabled	New Bedford	Leaking
Bristol	July 4	Aground	Rosario	Not stated	Myra Frances	July 11	Fire	Tomkinsville	Considerable
Borghild	June 17	Aground	Greenock	Floated	Matheos	June 19	Ashore	Glasgow	Floated
Blairdevon	June 29	Ashore	New York	Bottom	Maya Maru	June 25	Collision	Shimniseki Straits	Plates
Craster Hall	June 21	Collision	Partridge Island	Sank	Masuren	June 29	Ashore	River Parrett	Not stated
Coban	June 19	Struck	Port Arthur	Slight	Notanda	June 18	Aground	Nr. Cardiff	Floated
C. B. Watson	June 15	Collision	Nr. Oros Channel	Slight	Nicolo Odero	June 30	Collision	Galveston	Damaged
Canaris	June 5	Collision	Portage River	Plates	Octorara	June 21	Aground	Off Crystal Beach	Floated
Crete	June 25	Collision	North Chelsea	Bow	Ozark	June 23	Collision	Off Truro	Bow-aground
Coulee	June 26	Struck pier	Geedy Island	Floated	Oima	June 7	Stranded	Torhamn	Floated
Currier	June 29	Aground	Holland	Not stated	Odile	June 23	Disabled	Quarantine	Engine
Consul Poppe	June 16	Aground	Off Cape aux Oies	Not stated	Ordine	June 13	Aground	Nr. Alberoni	Floated
Canadian Trapper	June 30	Collision	Galveston	Damaged	Oakey L. Alexander	July 8	Disabled	Norfolk	Boiler
Carla	June 30	Collision	Cape St. Lawrence	Floated	Old Charlton	July 1	Collision	Sea Reach	Stem; bows
Charles Brower	July 7	Aground	No. of Santa Cruz	Total loss	Paraguay	June 4	Ashore	Nr. Colonia	Not stated
Crescent City	July 8	Ashore	Talara	No. 2 hold; bottom	Paul Jeannine	June 7	Hvy. weather	Penzance	Rudder
Craster Hall	June 19	Collision	Bremen	No. 2 hold	Palm Branch	June 10	Struck obs.	Off Antwerp	Propeller
Cuba	June 20	Fire	Hogland	Bows	Port Chester	June 24	Fire	New York	Slight
Consul Poppe	June 22	Aground	Port Pirie	Floated	P. B. No. 1	July 23	Fire	New York	Slight
Cycle	June 22	Aground	Singapore	Forward	Proteus	June 4	Disabled	Brisbane	Rudder
City of Pekin	June 28	Collision	Nr. Rotterdam	Stanchions	Point Fermin	June 27	Stranded	Boca Chica	Not stated
Claus Rickmers	June 28	Collision	Detroit River	Not stated	Port Curtis	June 29	Hvy. weather	Off Durban	No. 3 and 5 holds
City of Walkerville	July 7	Collision	Holtenau	Motor	Queda	June 5	Aground	Calcutta	Damaged
Conrad Luhring	June 16	Disabled	Marseilles	Machinery	Reginolute	June 21	Collision	New York	Not stated
Citta Di Porto Maurizio	June 22	Disabled	Dartmouth	Leaking	Rose Standish	June 12	Collision	Boston	Slight
C. F. H. Amble	July 1	Disabled	Off Jersey	Considerable	R. G. Richardson	July 7	Struck break-water	Connaut	Rudder; shoe
Dragoon	June 4	Struck rock	River Ban	Not stated	Relax	July 4	Fire	Shrewsbury River	Sank
Druid	June 6	Struck bar	Kotka Harbour	Floated	Rudolph Bros.	July 11	Fire	Tompkinsville	Slight
Dilston	June 16	Aground	Quebec	Plates; frames	Reginolute	June 19	Collision	Talara	Not stated
Doric	June 19	Collision	Adelaide	Stern	Surge	June 23	Collision	Off Truro	Sank
Dundula	July 1	Collision	Copenhagen	Machinery	Spezia	June 4	Ashore	Gibraltar	Floated
Eurasia	June 4	Disabled	Great Yarmouth	Plates	Selwyn Eddy	June 25	Stranded	Nashon Island	Not stated
Emlynmor	June 6	Struck pier	Yokohama	Floated	Selwite	June 29	Ashore	Tors Cove	Not stated
Empress of Canada	June 10	Ashore	Halifax	Leaking	Steel Trader	June 14	Ashore	Saratoga Spit	Floated
Emily E. Selig	June 23	Disabled	Delaware Break-water	Bow	Silkeborg	June 16	Aground	Kaiser Wilhelm Canal	Floated
Ellenville	June 30	Collision	New York	Considerable	Seaward	June 29	Fire	San Francisco	Considerable
Ebro	July 5	Fire	Constantinople	Bottom	Socony No. 5	July 6	Ashore	Off Duxbury	Floated
Emlynian	July 8	Struck sub. object	Seldom	Leaking	Sunbeam	June 21	Aground	Berwick-on-Tweed	Floated
Earl Drey	June 22	Disabled	Off Jize Point	Starboard side	Solway Firth	June 21	Aground	Porthleven	Floated
Empress of Asia	June 21	Collision	Off Atlantic City	Boiler	Spilsby	June 30	Collision	Genoa	Slight
Eastern	June 23	Disabled	Noumea-Caledonia	Abandoned	Tampa	June 16	Collision	New Orleans	Damaged
Francis Xavier	June 30	Struck reef	Tors Cove	Total loss	Turner	June 20	Disabled	New York	Boiler
Felicite	June 29	Ashore	Off Swinemunde	Floated	Topila	June 15	Collision	Port Arthur	Slight
Firth of Forth	June 22	Stranded	Bugsbys Reach	Sank	Terje	June 28	Collision	Toledo	Not stated
Forward	July 1	Collision	River Clyde	Machinery	Tatsuno Maru	June 29	Fire	At sea	No. 6 hold
Glenfinlas	June 20	Disabled	Bressay	Floated	Tottori Maru	June 13	Collision	Singapore	Slight
Girls' Friend	June 8	Aground	Soderkoping	Considerable	Tango Maru	June 17	Ashore	Kurushima Straits	Floated
Gunther	June 8	Explosion	Victoria Channel	Slight	Teleopea	June 16	Struck bank	Liverpool	Wrecked
Greif	June 16	Ashore	Adelaide	Not stated	Tekla	June 30	Touched bot.	Nr. Moon Lane	Not stated
Gera	July 1	Collision	Mud Lake	Damaged	Union	June 27	Disabled	Greenwich, Conn.	Boiler
H. P. McIntosh	June 22	Aground	Kaiser Wilhelm Canal	Forepeak	Utira	June 16	Ashore	Antilla	Not stated
Hounsflow	June 14	Collision	Scarborough	Main pipe	Unicoi	July 8	Disabled	Colombo	Engines
Hutton No. 2	June 17	Aground	E. of St. Johns	Not stated	Umvuma	July 1	Fire	Cape Town	No. 2 hold
Halse	June 30	Struck iceberg	Falmouth	Forward	Victoria Maru	June 21	Ashore	Saratoga Spit	Floated
Homer City	July 1	Disabled	Topolobampo	Not stated	Vulcan	June 29	Fire	Gullport	Not stated
H. T. Harpen	July 8	Aground	Lorain	Amidships	Vaba	July 10	Stranded	Nr. Constantinople	Floated
Harry Coulby	July 7	Fire	London	Not stated	Veni	June 27	Disabled	Pernambuco	Bottom
Ibiapaba	July 4	Collision	Portage River	Damaged	William A. Graber	June 20	Ashore	Buzzards Bay	Machinery
J. E. Gorman	June 25	Collision	Kaiser Wilhelm Canal	Floated	West Niger	July 7	Ashore	Se. Island of Negros	Not stated
Johanne	June 14	Collision	Barbados	Port side	Waalhaven	July 7	Fire	Off Savannah	No. 4 hold
Jacob Christensen	July 7	Aground	Mike	Floated	Woyo Maru	July 7	Aground	Nr. Yerinosari	Not stated
Juyo Maru	June 20	Collision	Port Pirie	Floated	Willowpool	June 18	Collision	Antwerp Roads	Slight
King Gruffydd	June 13	Aground	Osaka	No. 5 hold	Wright	June 23	Stranded	Norrskaer	Leaking
Keion Maru	June 17	Capsized	Off Lower Calif.	No. 5 hold	W. H. Donner	July 7	Collision	Detroit river	Plates
Katrina Luckenbach	July 1	Fire			Wellpark	June 27	Disabled	Las Palmas	Boilers
					Zapala	June 7	Ashore	English Bank	Not stated
					Zealand	June 13	Disabled	Rotterdam	Machinery

## New Clyde Liner Shawnee on Vacation Cruise

In response to an extraordinary demand for accommodations for its summer vacation cruises to Halifax, Quebec and the Saguenay river, the Clyde line has announced that another new ship, the SHAWNEE, just completed at Newport News, will be inducted into this service, sailing on her maiden trip from New York July 27, and from Boston July 28. She will repeat the cruise sailing from New York August 10 and 24, and from Boston the following day.

The SHAWNEE is identical in construction, equipment and furnishings with the IROQUOIS now in this service. She has superb accommodations for 675 passengers, and affords a luxurious and unusual service.

She is of three deck transatlantic type, double steel bottom equipped with salt water ballast tanks, complete electric light and power, refrigeration and ventilation plants. The SHAWNEE is 408 feet long, 62 feet beam, and her draft is 20½ feet when laden. She is an oil burner and her twin reduction geared turbine engines develop 10,200 horsepower, driving her at 22 knots.

## Contract for Cutters

The Bethlehem Shipbuilding Corp. has been awarded the contract by the United States coast guard for building five coast guard cutters at \$634,500 each, bids for which were received on June 21. This same corporation put in an alternate bid for \$634,800.

The only other bid received by the coast guard was from the Newport News Shipbuilding & Dry Dock company, at \$739,000 and an alternate of \$749,000. The alternate bid being for other machinery than that specified in the first three.

## Ask Bids on New Ships

The Matson Navigation Co. has asked bids on a small passenger steamer and on two colliers. When completed these vessels will be turned over to the Inter-Island Steamship Co. for operation among the Hawaiian Islands.

## Is Given Promotion

J. L. Crone, for 30 years attached to the United States steamboat inspection service and for many years local inspector of boilers in the New York district has been appointed supervising inspector to succeed the late captain H. M. Seeley. Mr. Crone

began his service as assistant inspector of boilers and later became inspector of boilers. He is recognized for his authoritative knowledge of boilers, machinery and vessel construction and shipping men feel that he well deserved his promotion.

## New Tanker Ordered

Crew, Levick and Co. has awarded the contract for a small tank steamer to the Bethlehem Shipbuilding Corp. She will be built at the Fore River plant of the corporation and will when completed be used in the coastal trade out of Philadelphia.

## Diesel-Electric Tanker Enters Service

The POINT BREEZE, first of the three new diesel electric tankers for the Atlantic Refining Co., will be placed in operation July 25. This boat, which was originally called the J. M. CONNALLY, was reconditioned by the Atlantic Refining Co. at its Point Breeze plant and, together with two others, was purchased from the United States shipping board. The remaining boats, the SHARON and the BESSEMER, are being reconditioned by the Alabama Drydock & Shipbuilding Co. at Mobile, Ala., and are expected to go in service on September 15.

With the addition of these three boats, the Atlantic Refining Co. fleet of diesel-electric vessels will total nine, eight built or reconditioned in this country and the other abroad by the Scott Shipbuilding Co., the latter utilizing electrical equipment supplied by the British Thomson-Houston Co.

The three new boats will probably operate in coastwise service, but may occasionally be used in foreign service between American ports and South Africa or Europe. The POINT BREEZE is expected to carry lubricating oil while the other two will probably carry gasoline or possibly some crude oil.

Each of the boats has a dead weight of 7,000 tons. They were formerly operated by steam, but the new power plants each consist of Ingersoll-Rand diesel engines and electric equipment furnished by the General Electric Co. Each tanker is equipped with three 850-horsepower, 225 revolutions per minute, diesel engines, each driving a 525-kilowatt, 250-volt generator for propulsion and a 50-kilowatt, 250-volt auxiliary generator for excitation and ship's auxiliary power. The propulsion generators will supply power to an 1800-horsepower, 90 revolutions per minute, 750-volt, double motor on each boat, direct connected to the propeller shaft.

## Build New Type Burner for Powdered Coal

Coincident with the announcement that the United States shipping board has approved a plan to install apparatus in the steamer MERCER for burning pulverized coal, the Research Engineering Corp., 25 Beaver street, New York, announced the successful development of a burner for marine and general use that consumes powdered coal, oil or gas either separately or in combination.

The new device, which has undergone a year's test, is the invention of D. J. Irish, a well-known combustion engineer who is connected with the Combustion Service Corp., a subsidiary of the Research Engineering Corp. He was formerly combustion engineer for Babcock & Wilcox, and is a graduate engineer of Cambridge University.

## Fire Damages Steamer

On July 12 shortly before she was to leave the Lorain yard of the American Shipbuilding Co. fire seriously damaged the forward passenger quarters of the new steamer HARRY COULBY. She was shortly to have had her trial trip and to be delivered to the owners. All of the work will have to be renewed and she will probably not be delivered until about the middle of August. The COULBY which is the largest American ore carrier on the lakes will be the latest addition to the Interlake Steamship Co.'s fleet managed by Pickands, Mather & Co., Cleveland and will be used in the ore and coal trade.

## Package Freight Grows

The steamer EDWARD E. LOOMIS sailed from Buffalo July 17, for Lake Michigan ports with 4449 tons of package freight. This is the largest west bound cargo of package freight that has ever left the port of Buffalo it is said. Sugar from a fleet of five barges of the Dispatch Shippers Corp. was transferred to the LOOMIS and in addition she took on board all of the freight which filled the barge canal terminal warehouse. Within ten days before the shipment the warehouse had been filled three times, which indicates the increasing importance of the package freight movement.

More coal has been moved on the Great Lakes this year up to July 1 than in either of the previous two years. Shipments up to July 1 were 13,982,892 tons as compared with 9,518,496 tons in 1926 and 7,731,546 tons in 1925 for the same period.

# Personal Sketches of Marine Men

Arthur J. Tyrer, Appointed Commissioner of Navigation

By L. M. Lamm



*IN HIS appointment the President gave just recognition to many years of able and faithful public service. He began in 1902 as stenographer in the bureau he now heads.*

*HE HAS perseverance and energy. In order to better fit himself for his work he studied law in his spare time, graduating 17 years ago at the age of 42.*

*HIS policy will be to promote co-operation between the bureau and the seaman or shipowner in order to reduce infractions of the navigation laws to an absolute minimum.*

**S**HIPPING people will undoubtedly be interested to know that "there will be no drastic changes in the administration of the navigation law," under the commissionership of Arthur J. Tyrer, who was recently appointed commissioner of navigation by President Coolidge to succeed D. B. Carson, of Memphis, Tenn., resigned. Mr. Tyrer has been deputy commissioner since 1909 and is well known by men and owners of the shipping industry as an able, courageous and fair executive.

"It has been the experience of the bureau of navigation," said Mr. Tyrer in an interview with the writer, "that masters and owners of vessels endeavor to comply with the navigation laws and instances of intentional and flagrant violations of these laws are very exceptional.

"For this reason," continued Mr. Tyrer, "it has been and will continue to be the policy of the bureau to bring to the attention of the interested parties the requirements in the law rather than attempt through imposition of drastic penalties to secure compliance. The bureau has had at all times in the administration of the navigation laws the hearty co-operation of ship owners, yacht clubs and other organizations of like kind.

"In the handling during the past year of approximately 12,000 cases of violations of the navigation laws with their attendant penalties, it has been the purpose of the bureau to mitigate such penalties to a sum necessary only to prevent a repetition of the action complained of rather than to penalize the master or owner. Although a careful record is kept it is seldom we find the law violated twice by the same vessel.

"In the administration of the mortgage act of 1920 and similar statutes, it has been the privilege of the bureau to be of considerable assistance to the shipping interests in connection with the technical and legal points involved in the particular cases considered."

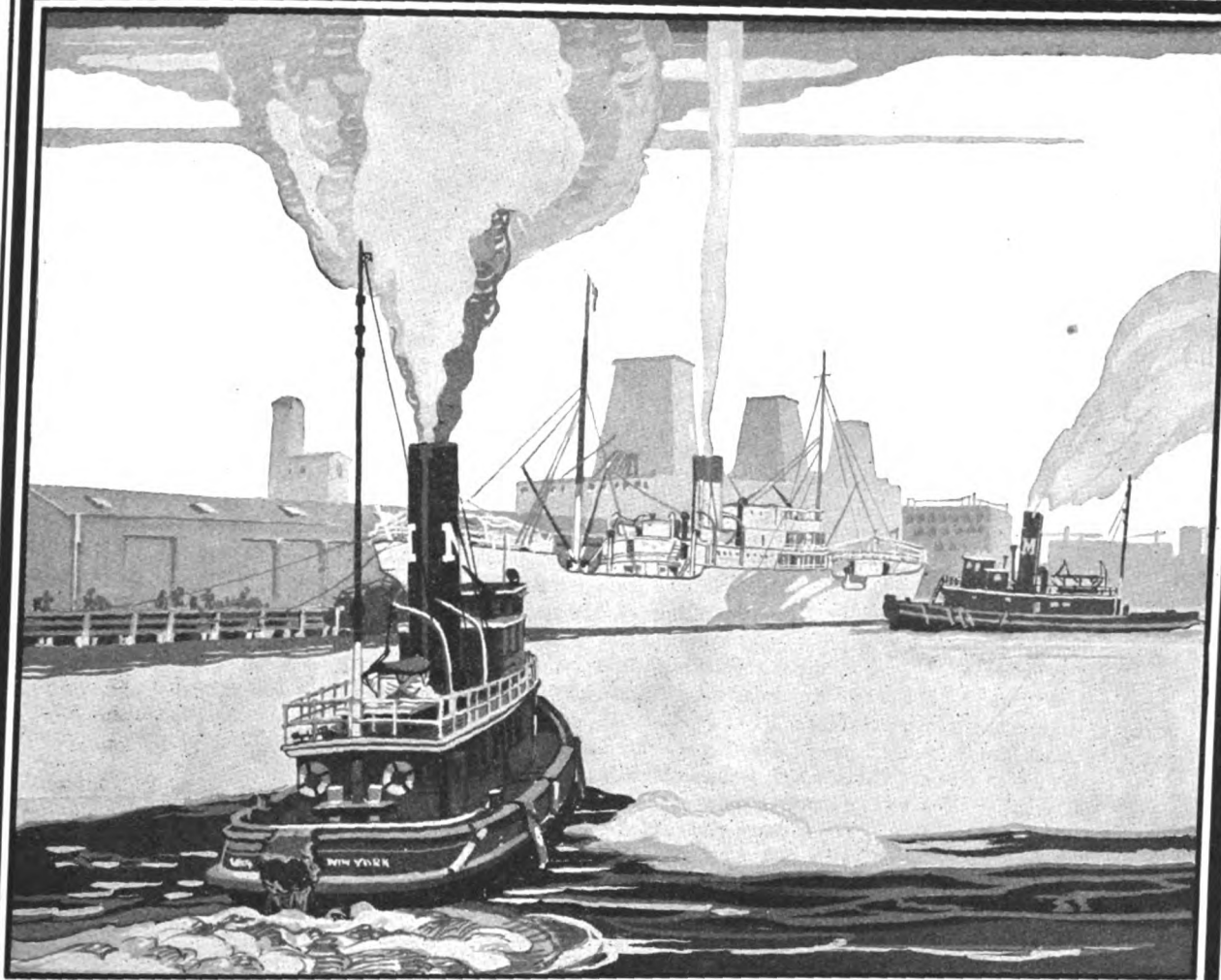
Mr. Tyrer, who entered the bureau of navigation as a \$900 stenographer in 1902 was born in Albert Lea, Minn., October, 1868. Prior to his work at the bureau he was in the office of Senator A. G. Foster of Washington. After gradual promotions in the bureau Mr. Tyrer was made deputy commissioner in 1909. He has served in or organized each branch of the bureau's work with the exception of the statistical division.

Organization of the navigation inspection service of the bureau for preventing the overcrowding of excursion steamers was in the hands of Mr. Tyrer. He also organized the work of the general coast patrol service involving the purchase and operation of the vessels of the inspection fleet. He had much to do with the bringing of the shipping and admeasurement services and the marine divisions of the customs houses to their present state of efficiency.

For many years Mr. Tyrer has been engaged in the consideration of technical and legal questions involved in the administration of the admeasurement and coastwise laws, care for American seamen, statutes for safeguarding life on the water, equipment and manning of vessels, their documentation, recording of mortgages and bills of sale, and numerous other laws affecting the navigation of a vessel at almost every point from the time she is contracted for until she is finally abandoned.



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As is commonly known the bureau is charged with the general superintendence of the commercial marine and merchant seamen of the United States so far as vessels and seamen are not under existing law subject to the provisions of any other officer of the government. This work required legal training and for that purpose Mr. Tyrer completed a law course at George Washington university graduating in 1910. He is a member of the bar of the District of Columbia.

In connection with this work Mr. Tyrer prepared for congress the draft of a number of acts having to do with safety of life on the water, the movement of commerce, etc. Among these, are the so-called numbering act of 1918, under which identifying numbers have been placed on approximately 200,000 undocumented power boats and the names and addresses of owners recorded in the custom house. He also had considerable to do with the change of names of vessels act of 1920, enacted to prevent disguise of old vessels under new names and fixing one of the means of identification. This act also has produced considerable revenue to the government. Other measures on which he has worked are: the home port act of 1925 which was found necessary to quiet the title and insure the validity of mortgages in the case of documented vessels of the United States; and the sixth great district act of 1926, the effect of which is to relieve the immense commerce on the great lakes from the filing of numerous statistical reports on each voyage and substituting therefor periodical reports thus furnishing all of the required statistical data while doing away with a great mass of unnecessary clerical labor.

"During the past three years," said Mr. Tyrer, "the bureau has continued in the activities which it has carried on for over 100 years in the enforcement of the navigation laws of the United States. These laws are extensive and detailed and cover practically every step in the navigation of over 200,000 small vessels, 26,951 trading vessels of over 18,000,000 tons operating within our waters and of all foreign vessels entering and clearing our ports. Most of the regulations with which the bureau is concerned have particular reference to the safety of life and property at sea and their enforcement is for that reason of the highest importance.

"It is impossible to detail the activities of the bureau. The vessels under its control patrol the waters of the Atlantic coast from Eastport, Me., to Galveston, Texas. While, as a rule, the navigation laws, are well observed,

yet violations reported to the bureau, many of which are trivial but some important, number about 12,000 annually. The inspectors supervise the loading of excursion steamers to see that the number embarked does not exceed the authorized limit and during the year 5,775,279 passengers were counted in the performance of this duty. The employment and discharge of approximately 500,000 officers and men each year on American vessels is supervised by the shipping commissioners who handle various matters in connection with their shipping, wages, quarters and treatment."

That the appointment of Tyrer as commissioner is popular can be seen from the following editorial published in the Portsmouth (Va.) Star, immediately following the announcement by the President. The Star editorial said:

The appointment by the President of A. J. Tyrer to be commissioner of navigation in succession to D. B. Carson, of Tennessee, resigned, is one of the best appointments of the entire Coolidge administration. It is removed from politics in every sense of the word and is an appointment where merit only won for the recipient his commission. Mr. Tyrer has served through numerous Presidential administrations as assistant commissioner of navigation. Under Commissioner Chamberlain, appointed by Grover Cleveland—and who saw service down through the years—until the Carson appointment by Mr. Harding, Mr. Tyrer has run the practical side of the commissioner's office with credit and distinction.

It can certainly be said that one who knows the duties of the commissionership of navigation, as no one else knows them, has been appointed to direct the affairs of the bureau.

The appointment, too, indirectly reflects all credit upon Secretary of Commerce Herbert Hoover, to whom the new commissioner of navigation will report directly, because it is clearly evident that Mr. Tyrer's nomination went from the office of his new chief, Mr. Hoover, to the White House. The appointment must have been made quickly, because had the politicians received advance knowledge of the pending resignation of Mr. Carson there is no telling what might have happened. Certainly the nation received the benefit from what did transpire.

Virginia, and Virginians who have to do with matters maritime, will of one accord approve the appointment of A. J. Tyrer to the commissionership of navigation. This because the right man is indeed in the right place.

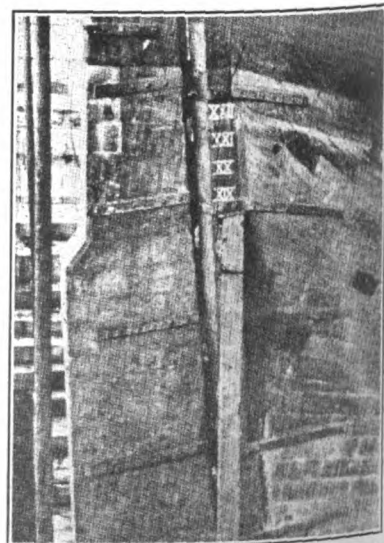
## Lord Nelson's Flagship

**W**HEN Lord Nelson's flagship VICTORY, went into drydock for repairs at Portsmouth, England, not long ago, the original copper-sheathed rudder was found to be still in serviceable condition in spite of its age.

The famous vessel is being extensively refitted and reconstructed and will soon look exactly as she did when Nelson fell upon her deck mortally wounded at the Battle of Trafalgar in 1805. With the passage of more than a century many parts of

the old ship have rotted away and must be replaced. Not so the copper-covered rudder, however. It remains untouched by rust or decay. The photograph which is reproduced here was taken just after it had been overhauled and reswung. The rudder is as good today as it was 122 years ago when it guided Nelson and his ship into one of the decisive naval engagements of modern history.

It was from the deck of the VICTORY that shortly before his death Nelson gave his famous signal to the British fleet, "England expects that every man will do his duty."



ORIGINAL COPPER-SHEATHED RUDDER STILL ON NELSON'S FLAGSHIP

Reprinted from the June 15 bulletin of the Copper & Brass Research Association.



# Let Every Marine Engineer Imagine

As you read this page, let's imagine you and a group of the most highly trained, highly respected marine engineers in the world today are assembled under one roof.

You have come together to pool your knowledge, your experience and your requirements, and you are going to determine the specifications for the ideal Diesel Engine lubricant.

Above all others, what requisite would you want?

Undoubtedly, Minimum Carbon Residue, would you not?

Alright, put that down.

Next you would want Purity; and certainly you would want "Oiliness".

You also want Body, Uniformity, Fluidity and Compression Seal.

Now then, let's check them over and see what we get:—

Minimum Carbon Residue

Purity

"Oiliness"

Body

Uniformity

Fluidity

Compression Seal

## TEXACO URSA OIL For Diesel Engines

has *every one* of these characteristics in a marked degree; and in one particular—its minimum carbon residue—it is absolutely supreme.

And, the reason why TEXACO URSA OIL leaves no detrimental carbon residue is because it is non-blended, highly refined and because it is a *distillate* oil.

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We shall be only too glad to demonstrate the exceptional lubricating ability of TEXACO URSA Oil to you, any time, any where.

Such demonstration will prove to you why more and more marine engineers are using TEXACO URSA Oil for Diesel Engine lubrication—cleaner burning, surer bearing protection, easier starting, delivery of full power.

Considering all these qualities the price is fair—and more than likely less than what you are paying now.

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## Diesel Conversion

(Continued from Page 12)

This vessel is now engaged on a voyage around the world. Equally good reports have been received of the performances of the other vessels converted.

The performance to date of those vessels already converted indicates that there is a definite practical field of usefulness for this type of vessel and the shipping board has therefore, authorized the conversion of 12 additional vessels. Under the direction of Captain Gatewood specifications have been prepared for the main diesel units necessary to continue this program. With the view of somewhat improving speed, greater power will be asked for in the 12 additional engines, bids for which will shortly be out.

It will probably be two years at least from this time before the completion of the board's present program of 24 diesel vessels converted from steam. Chairman O'Connor and the shipping board commissioners deserve the thanks of every American shipping man for the vision and courage they exhibited, in the face of much criticism, in going ahead with this program so that our engine builders could get the experience to build efficient diesel engines and our operators first-hand direct knowledge of the working of diesel ships.

## To Convert Three Ships To Diesel Electric

The shipping board on July 8 authorized Commissioner Wm. S. Benson to employ Gibbs Brothers, Inc., of New York, and Rear Admiral D. W. Taylor, United States navy, retired, jointly, to prepare plans and specifications under which bids will be sought for alteration and installation of diesel-electric equipment on one or more of three large steel cargo steamers now laid up in the shipping board inactive fleet.

Admiral Taylor and William Francis Gibbs, of Gibbs Brothers, have been working together on experiments relative to the possibilities of increasing the speed of ships by alteration of the hull lines. They have submitted a report in which it is stated that their investigations indicate that certain changes in the design of the vessels considered will increase their speed.

The ships under consideration are the **COURAGEOUS**, **DEFIANCE** and **TRIUMPH**, each of which is 11,773 tons dead-weight.

Up to the present time the ships converted to diesel propulsion have been for operation on direct diesel drive. The plan for these three ships will call for diesel-electric drive.

Stephen H. Cossey, the present representative of the family in this line of business, became associated with his father, Harry Cossey, in 1894; and, since that time, forty-one floating dry-docks and eleven hundred forty-nine barges, scows, lighters, carfloats, and bottom dumping scows, all at present in service in the New York harbor trade, have been constructed—a remarkable record of accomplishment.

This shipyard, which has produced wood harbor craft for the most important railroads having terminals in the vicinity of Greater New York, and also for the larger marine transportation companies, is now turning from the traditional wood craft to steel barges for harbor and canal. It is evident that there will be an increase in steel construction.

## William G. Coxe 1868-1927

William Griscom Coxe, president of the Pusey & Jones Corp., with a shipbuilding plant at Wilmington, Del., died at his home in Bellevue, Del., July 4 in his fifty-ninth year. Death was unexpected although he had been ill for some time.

Mr. Coxe was a nephew of William Griscom, famous as a ship owner, and served an apprenticeship as a marine engineer with the J. & W. Thompson Co. of Clyde Bank, Scotland, following his graduation from the Royal Technical college in Berlin. Later he was with the North German Lloyd line at Bremerhaven, Germany, and from 1894 to 1904 was foreign representative and general superintendent of the William Cramp & Sons Ship and Engine Building Co., Philadelphia. Then Mr. Coxe was elected president of the Harlan & Hollingsworth Corp.

After 13 years he became general manager of the Pusey & Jones plants at Gloucester, N. J. At the same time he served as consulting engineer of the Merchants' Shipbuilding Corp., with plants at Chester and Bristol, Pa. During the World War he was district manager of the United States Emergency Fleet Corp. in the Delaware river district. From 1917 to 1920 Mr. Coxe was president of the Atlantic Coast Shipbuilders association. He was also president of the Reading Paper Mills Co., Reading, Pa. During the Spanish-American war he served in the navy as an engineer, with the rank of lieutenant, and lost the sight of an eye when a boiler tube exploded.

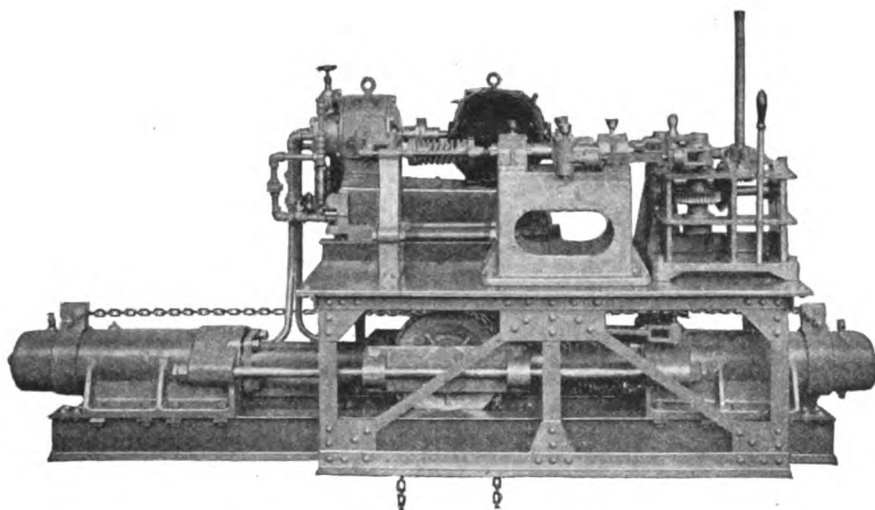
## An Old New York Shipyard

**G**REATER New York City, crossed and re-crossed by many waterways, has been forced to depend upon marine transportation to an extent that cannot, perhaps, be realized by inland dwellers. The use of lighterage has always been essential in bringing the necessities of life into the city, inasmuch as it has been impossible to provide adequate railroad facilities within the greater city. As a consequence, a system of marine transportation, tremendous in its scope, has been developed on the rivers and sounds which surround and cross the city.

One important cog in this great system is found on Staten Island, N. Y., at Tottenville, in the Stephen H. Cossey Shipyards. The name of Cossey for eighty-five years has been connected with construction of wooden craft for water transportation and it has earned a reputation for integrity.

The Cossey business was founded on

Lake Champlain in 1842 by Henry Cossey, Second, father of Harry Cossey, and grandfather of the present Stephen H. Cossey. Henry Cossey came to New York in the early eighties and established a plant at the old Brooklyn saw mill yard at Fifteenth street and Hamilton avenue, where he constructed what is believed to be the first decked, or as it was then known, ballast scow used in New York harbor. In 1892, Harry Cossey, father of Stephen H. Cossey, became engaged in general wood marine construction in Brooklyn, N. Y., and his plant was located at Twenty-fifth street and Gowanus canal. By 1905 the volume of business had increased to such an extent that it became necessary to move to larger quarters; consequently, a shipbuilding plant covering approximately twenty acres, and having a frontage of twelve hundred feet on Staten Island sound was established at Tottenville, N. Y.



*A-E-Co Electro-Hydraulic Steerer*

## *A very compact Electro-hydraulic Steerer*

Every inch of space counted in the design of this steerer, which is installed on the tug New Rochelle, built by A. C. Brown & Sons for the Red Stack Transfer and Towing Company.

Absolute dependability is insured by the use of the Hele-Shaw Hydraulic Pump with *reversible* discharge, which makes it possible to install a follow-up mechanism of extreme simplicity.

The pump, itself, is direct-connected to a constant speed electric motor and always rotates in the same direction and at the same speed, regardless of the amount and direction of the discharge.

No electro-hydraulic mechanism can be better than its pump. The Hele-Shaw is as good a pump as can be built.

## **American Engineering Company**

Kensington Station  
Philadelphia, Pa.

*"Leaders in the Marine Field Since 1857"*

## Double Acting Diesel

(Continued from Page 13)

the New London Ship & Engine Co. at Groton, Conn., and represents the latest development of the 2-cycle, double acting engine in this country. It develops 3680 shaft horsepower at 115 revolutions per minute, and is of the 4-cylinder, air injection type with scavenging pump attached. Combustion takes place above and below the piston in each cylinder during every revolution, resulting in the smoothest possible flow of power through the crankshaft. One can readily appreciate that the 2-cycle, double acting type represents the final development of the internal combustion engine as it is obviously impossible to obtain a greater number of combustions from one cylinder during a revolution.

### Completed 30-Day Non-Stop Run

The engine has just completed a thirty day non-stop full load test carried on under the supervision of representatives from the United States shipping board, to whom the engine will be delivered. During this run, the engine developed a continuous output of 3680 brake horsepower when operated at a speed of 115 revolutions per minute. The length of the test was selected in order to compare with the longest sea run which shipping board vessels are called upon to make. It is interesting to note that this run, carried out without any stops whatsoever, constitutes the longest test to which an engine of this size has ever been subjected in this country. This display of reliability and continuous power output, has amply demonstrated the excellence of design, workmanship and material employed by its builders.

This 3680 shaft horsepower Nelseco 2-cycle, double acting engine, type D4Z70/120 will be installed in the steamer WILLSCOX. This ship is 9500 deadweight tons, 420 feet in length, 54 feet in width, 33 feet 9 inches in depth and was originally fitted with a 2800 indicated horsepower steam engine. She is of the Oscar Daniels type and was built at Tampa, Florida. The additional horsepower will result in considerably more speed than the ship developed formerly.

A brief review of the original design and development of the first large double acting diesel engines will, we believe, be of interest, inasmuch as it illustrates the long and painstaking efforts devoted to the attainment of this advanced type of prime mover.

Early in 1911 the Maschinenfabrik Augsburg-Nürnberg, A. G., of Augsburg, Germany, who were the pioneers in the development of the diesel engine and are the licensors of the

New London Ship & Engine Co., undertook the design and construction of a 6-cylinder, 2-cycle double acting engine to develop 12,000 shaft horsepower. This engine was for the account of the German admiralty for use in a light cruiser. Due to the magnanimity of the order, M. A. N. first constructed a single experimental cylinder of 2000 horsepower, which was the basis for its design of the larger engine. After due tests and experimentation the 12,000 horsepower engine, at that time the largest diesel engine in the world, was finally finished and successfully passed tests at the M. A. N. Nürnberg shops. The intervention of the World War delayed the development of similar units and it was not until 1920 that the M. A. N. company again took up the construction of other large 2-cycle double acting engines. Convinced that they could improve on the 1911 effort, they again built a single experimental cylinder and carried on extensive tests in the perfection of details in design and construction. The result of this effort was the placing of an order with M. A. N. from the Hamburg Electric Co. for a 15,000 brake horsepower, 2-cycle, double acting engine. This engine of nine cylinders is the largest diesel engine in the world and is now operating in Hamburg to the entire satisfaction of its owner.

### Orders for Marine Propulsion

Simultaneously with this development, M. A. N. began receiving large orders for marine service. Prominent among these is the motorship AUGUSTUS built in Italy by Cantieri Officine Savoia. This ship is a passenger liner of the most modern type, equipped with quadruple screws, each propeller being driven by a 7000 shaft horsepower 2-cycle, double acting engine. Other orders received by M. A. N. during 1926 included two 5400 horsepower, 7-cylinder, 2-cycle double acting engines to be installed in a freighter for the Hamburg Amerika line. Also two 5-cylinder engines of the same cylinder size and developing 3750 horsepower for single screw freighters of the same company. The North German Lloyd of Bremen have contracted for a 6-cylinder unit, developing 4600 horsepower, which will be installed in a freight vessel.

Recent orders received include two large stationary engines, each rated at 11,700 brake horsepower, both of which will be installed in the Maerk Power house, Berlin. Three smaller units, developing 2230 horsepower each, have been contracted for in Russia and will be installed in the Stalingrad Iron Works. The Rotterdam

Lloyd of Rotterdam will install in their new passenger ship, the KOTA GEDE, a 7-cylinder 5200 brake horsepower, 2-cycle double acting engine. The Hamburg Amerika line has placed an order with the Bremer Vulkan Vegesach for a 17,000 ton freight and passenger ship in which will be installed four M. A. N. double acting engines.

The motorship BRAUNSFELS has recently undergone her trial trip and is now at sea. This ship is equipped with one 4000 brake horsepower, 6-cylinder, 2-cycle double acting engine.

The above list is not complete and represents only a partial list of two cycle, double acting engines now under construction by the M. A. N. company and its licensors throughout the world. It illustrates however, the enthusiastic reception which this design and type has received, both in Europe and this country. Offering as it does, marked advantages in the reduction of weight and space and also in manufacturing costs of the engine proper, it is evident that this type will greatly appeal to ship owners who are desirous of equipping their vessels with the most modern and economical type of diesel engine for large ocean going vessels.

## Buy Boats for Chicago St. Louis Service

It is reported that a \$200,000 contract for construction of two Sunco towboats and barges, the first to be operated commercially in the Sunco System for waterways transportation, has been let to the Nashville Bridge Co., Nashville, Tenn., by the Standard Unit Navigation Co., St. Louis.

With completion of the Sunco towboats, of 360 and 150 horsepower respectively, to be driven by propellers of the water tractor type, specifications will be submitted for bids on construction of an additional 20 barges, which will complete the first fleet of the system. The initial contract specifies completion of the boats in 60 to 90 days.

According to Carl J. Baer, president of the Standard company, the first fleet will be ready for operation about Jan. 1.

This fleet is designed to handle freight between St. Louis and Chicago via the Illinois river, co-operating with the Mississippi River Warrior Barge Line as a feeder for freight to and from points on the lower Mississippi.

The steamer HENRY CORT is engaged in carrying scrap from Detroit to the Otis Steel Co., Cleveland. Finished products such as sheets are carried back.





GERARD SWOPE

## BUSINESS PAPERS —spokesmen for industry

"THE interpretation of the ethics and ideals of business and industry to the public," said Gerard Swope, president of the General Electric Company, at the last Associated Business Papers Convention, "can have no better mouthpiece, can have no better spokesman, than the technical and business press."

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The editors pick out of the many phases of the flow of trade, news and policy trend in methods or machinery which will best serve the reader's needs. The advertising pages are a huge many-leaved coupon on the editorial section. And above all, the paper as a whole seeks to express the higher purposes and objectives of the small and large business men it serves.

For as Mr. Swope further said in his fine analysis of industry responsibility in this same address:

"It isn't necessary to be big to be successful, but it is absolutely essential to be successful to be big. You can't grow without that."



The A. B. P. is a non-profit organization whose members have pledged themselves to a working code of practice in which the interests of the men of American industry, trade and professions are placed first—a code demanding unbiased editorial pages, classified and verified paid subscribers, and honest advertising of dependable products.

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## British Shipping Busy

(Continued from Page 25)

ers for £40,000 (\$194,000). The steamer *CARDIFF* of 6000 tons deadweight, built in 1898, was sold to Italian buyers for about £10,000 (\$48,500); in 1920 this vessel changed hands for £90,000 (\$436,500) after having been practically rebuilt. In December, 1921, she realized about £15,000 (\$72,750), early in 1924 she changed hands for about £11,000 (\$53,350), and in February, 1926, again for £7250 (\$35,000).

A motorship of 9435 tons deadweight, built in 1925, was sold by the Hall Line, Ltd., of Liverpool to owners of Newcastle-on-Tyne. The London owned steamer *CITY OF CANDIA*, of about 6700 tons carrying capacity and built in 1903, was acquired by the Otter Trading & Steamship Co., Ltd., Cardiff, for £17,000 (\$82,450); the same vessel changed hands for £12,500 (\$60,625) at the beginning of this year. British shipowners have purchased two Hungarian steamers, one of 6770 tons built in 1912, the other of 4760 tons built in 1906, for a total price of £34,000 (\$164,900), and on the understanding that the vessels will not be used for trading with the United States. In June, a Norwegian ship of 8200 tons carrying capacity, built in 1920, was acquired by a Liverpool firm for £46,000 (\$223,100). An ex-German steamer of 8115 tons, which had been damaged by fire, was bought by Italian shipbreakers for £8500 (\$41,225).

### Freight Market More Active

The activities of the freight market have substantially increased during the past three months. Rates have fluctuated but were higher than at this time last year; the improvement is seen on the accompanying chart of index numbers compiled from *The Statist*, London. Figures prepared by the chamber of shipping show an important reduction in the tonnage of British and foreign vessels laid up idle. The decrease on April 1, as compared with Jan. 1, amounts to 125,193 tons net, or 34.3 per cent, the actual figures being 364,874 on Jan. 1 and 239,681 on April 1. Present indications are toward the maintenance of this improvement.

Early in the spring there was a burst of activity in the Argentine chartering market, notwithstanding the Easter holidays. The Mississippi floods are said to have influenced the stimulating of grain business with the River Plate. Australian chartering and Montreal rates also revived. Sharp

rate reductions were effected on certain commodities going to South Africa. For example, the freight on fencing was reduced in April from 27s 6d (\$6.65) to 15s (\$3.64) per 20 hundredweight. In May a further reduction was made to 5s (\$1.20), which leaves very little margin when one takes into account loading and discharging expenses, and port charges. At the beginning of June there was a revival in the demand from eastern markets, particularly India, but a decline of trade with the North American market. The Near East was dull. The homeward River Plate market remained strong.

### Some Rates Unsatisfactory

At the end of the month conditions became patchy. There was more activity in outward coal to South America, but homeward rates from the River Plate collapsed. However, there still is a large surplus of grain afloat. Montreal rates at present are unsatisfactory and Cuban sugar remains quiet. Eastern trade has declined, while Australia again is showing more interest. There is an ample supply of tonnage offering in outward coal but owners are reserved owing to the poor homeward conditions from the River Plate. Ore chartering from the Mediterranean is fairly active. The Baltic and the White Sea markets have revived. The following are characteristic rates quoted at the end of the month: River Plate to United Kingdom 22s (\$5.35), Cuban sugar 19s (\$4.60), outward coal from Wales to Buenos Aires 13s 6d (\$3.25), Montreal grain to Mediterranean 10c, ore from Benisaf to Philadelphia 8s 6d (\$2.05).

The Board of Trade figures giving the movements of vessels at British ports show more activity now than a year ago. In May, 1927, 5667 vessels of 5,330,073 tons entered British ports with cargoes, and 5169 vessels of 5,516,134 tons cleared with cargoes to foreign destinations. During the first five months of the year a total of 24,045 vessels, trading foreign, aggregating 23,999,951 tons, entered British ports with cargoes. This compares with 21,301 vessels and 21,233,667 tons in the corresponding period of 1926. Of this year's tonnage, 22.3 per cent came from the Atlantic coast of North America, as against 21.5 per cent in the corresponding period of last year. The total clearances from British ports in the period ending May 31, 1927, were 24,661 vessels of 25,647,472 tons, as compared with 21,400 vessels of 22,768,142 tons in the first five months of 1926. Of these clearances, 15.4 per cent went

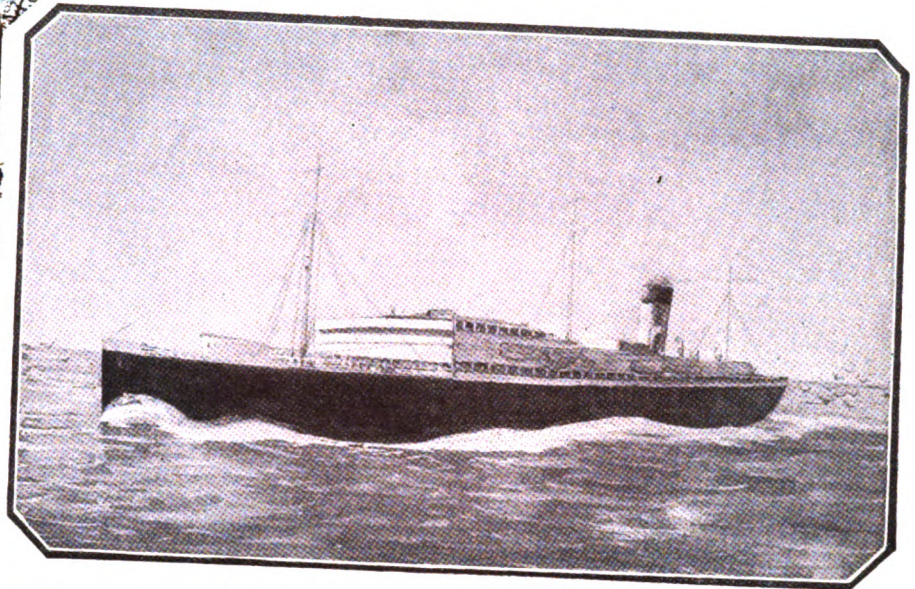
to the Atlantic coast of North America this year, as compared with 17.6 per cent last year.

The Great Western railway is laying plans to improve dock facilities in South Wales. The principal South Wales docks came into possession of the railroad in 1921 and it is claimed that the company owns the world's largest dock system. At present a scheme costing over £2,000,000 (\$9,700,000) is in hand at the ports of Cardiff, Swansea, Newport, Barry, Port Talbot and Penarth for the adaptation or reconstruction of coal shipping appliances for dealing with the new type of 20-ton trucks recently introduced. At the port of London, the Thames Ironworks, Silvertown, which has been closed down for several years, has been leased by Samuel Instone, Ltd., colliery proprietors and exporters. The site will be equipped with up-to-date wharves, warehouses and sheds, and will be linked by railroad connections with all parts of the country. Recent statistics presented to the Port of London Authority show that the tonnage of vessels arriving in or departing from the port of London with cargoes is on the increase; the tonnage for the year ending March 31 was 32,626,229 tons, an increase of 933,352 tons on the preceding year.

Exports of British coal for the five months ended May 31 exceeded last year's figures, although they did not quite reach those of 1925. For the first five months of this year exports amounted to 22,005,967 tons, as against 18,929,604 tons in 1926 and 22,114,598 tons in 1925. Coal shipped for the use of steamers engaged in foreign trade during the same period was 6,707,525 tons this year, 5,842,717 tons in 1926 and 6,968,212 tons in 1925. Last year in May the effects of the coal stoppage were beginning to make themselves felt. The total value of exports of British goods, exclusive of bullion and specie, for the first five months of this year was £341,963,359 (\$1,655,000,000), as compared with £343,952,854 (\$1,670,000,000) in the corresponding period of last year. As compared with last year, there was a considerable drop in exports of cotton yarns and manufactures; oil seeds, fats, etc. and vehicles also decreased. There was an increase in exports of coal, wool and woollens. The value of imports for the first five months of this year was £518,037,620 (\$2,500,000,000), as against £505,135,426 (\$2,450,000,000) in the corresponding period of last year. The principal increase was for iron and steel.



Steamship Maui in mid ocean enroute to Hawaii. She holds a record of nearly  $\frac{3}{4}$  of a million miles logged with her 7500 S.H.P. Westinghouse Geared Turbines.



# Two Million Miles

**T**WO million miles is the total record logged by Westinghouse geared turbines on eight steamships of the Matson Navigation Company.

The steamship Maui, only ten years old, has nearly three-fourths of a million miles to her credit alone.

It is through such dependable service that the long run to Hawaii has been made so popular by the Matson Line fleet.

The reliability of Westinghouse turbines and gears has had no small part in enabling these steamships to maintain their high standard of transportation.

Westinghouse Electric & Manufacturing Company  
South Philadelphia Works      Philadelphia, Pa.  
Sales Offices in All Principal American Cities  
Service Stations in Principal American Ports

# Westinghouse

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# New Trade Publications

**OIL PUMPS**—Goulds Pumps, Seneca Falls, N. Y., has issued a bulletin showing its pumps in service in two oil plants. Special design for this class of work has resulted in a minimum of maintenance expense.

**LUBRICATOR EQUIPMENT**—Alemite Lubricator Co. is circulating a bulletin calling attention to its lubricating devices for industrial use. Illustrations show appliances and method of using and a number of installations. Ease and thoroughness of application are stressed.

**CENTRIFUGAL PUMPS**—Worthington Pump and Machinery Corp., 115 Broadway, New York, has issued bulletin No. W613 on Worthington high-efficiency centrifugal pumps. These pumps have efficiencies of from 8 to 10 points higher than the average centrifugal pump. The bulletin describes the new pumps in detail. It also tells how 10,000 pump inquiries were analyzed to determine the heads and capacities most commonly specified by pump users and this information was used in the design of the new pumps.

**ACID-RESISTING PUMPS**—Duriron Co., Dayton, O., manufacturer of metals designed for use with corrosive fluids, in a current bulletin describes two types of pumps for moving acids. Diagrams illustrate their use.

**FLEXIBLE COUPLING**—W. H. Nicholson & Co., Wilkes-Barre, Pa., is distributing a bulletin describing its all-metals, oiled flexible coupling. Degrees of misalignment corrected by this coupling are illustrated. Details of construction

and operation are shown. Half-tones of installations are presented.

**ELECTRIC FURNACES**—C. I. Hayes, industrial electric heating engineer, Providence, R. I., has issued a bulletin describing a type of furnace for forging, heat treating, melting non-ferrous metals, hardening, testing fire clays and firing pottery and ceramics. Illustrations and diagrams cover its construction and operation.

**ELECTRIC MOTORS**—Wagner Electric Corp., St. Louis, has issued two bulletins covering two types of motors. Construction is shown in illustrations and details are covered in the text.

**BLUEPRINTS**—C. F. Pease Co., Chicago, manufacturer of drafting room and kindred appliances and supplies, has issued a catalog of its machines for making blue prints and other supplies in that connection.

**PNEUMATIC TOOLS**—Rotor Air Tool Co., Cleveland, which has taken over the pneumatic tool department of the Warner & Swasey Co., Cleveland, has issued a catalog of its grinders and drills. It is illustrated by half-tones of the tools in use and diagrams showing construction.

**PYROMETERS**—Taylor Instrument Co., Rochester, N. Y., has issued a pamphlet describing its self contained pyrometer for determining temperatures of nonferrous metals.

**STEEL LIFT PLATFORMS**—Youngstown Pressed Steel Co., Youngstown, O., has issued a series of leaflets and bulletins covering its lift truck platforms and tote boxes. Economy of space by tiering is obtained by angles

inside the legs. Crane-hook eyes and pockets for side stake increase usefulness of platforms and boxes.

**WELDING**—Reprints of a paper by one of its engineers, on pipe line welding, are being circulated by the Air Reduction Sales Co., New York. It covers the subject from the viewpoint of the oxy-acetylene welder. It is illustrated by views taken in the field.

**TIERING MACHINES**—Revolvator Co., Jersey City, N. J., has issued a bulletin describing its silent chain, spur gear drive model of portable elevator. Details are described and tables of dimensions given.

**PIPE FRICTION**—The Deming Co., Salem, O., manufacturer of pumps, has issued a bulletin giving tables of friction of water in iron pipe. It shows loss of head in feet from friction. It is designed to be inserted in the company's catalog.

**ROTARY BLOWERS**—Connersville Blower Co., Connersville, Ind., has issued a revised bulletin on its rotary positive blower. Principle of operation and details of construction are illustrated. A table of net capacities at various pressures is given. Other engineering data are included.

**PARALLEL RULE**—A new type of parallel rule for attachment to the drawing table is featured in a leaflet by the C. F. Pease Co., Chicago.

**POWERED COAL**—Application of powered coal to steam boilers and metallurgical work is covered in detail in a bulletin issued by the Kennedy-Van Saun Mfg. & Engineering Corp., New York. Use of finely pulverized coal is discussed and typical installations are illustrated.

**FEED WATER HEATERS**—Warren Webster & Co., Camden, N. J., has issued a bulletin describing its feed water heaters of puddled wrought iron.

# Business News for the Marine Trade

**Valex Course Indicator Inc.**, Malden, Mass., has been incorporated with \$30,000 capital to manufacture instruments, indicators, compasses and other instruments, by Andrew S. Valex, president, 140 Florence street, Everett, Mass.; Felix E. Shulman, 57 Fairmount street, Malden, Mass., treasurer, and Harold J. Clark, Watertown, Mass., clerk.

**Lake Chelan Steamship Corp.**, Grand Island, N. Y., has been incorporated to operate a navigation line, with \$100,000 capital, by Brown, Ely & Richards, Buffalo.

**Lake Ports Shipping & Navigation Co.**, Detroit, has been incorporated with \$99,000 capital to transport goods by water, by G. E. Couse, W. E. Richey, Chicago, and Andrew H. Green Jr., 2900 East Jefferson avenue, Detroit.

**Calumet Shipyard & Dry Dock Co.**, 9367 Harbor street, Chicago, has been incorporated with \$50,000 capital to deal in boats and own and rent docks, by Ira E. Westbrook, E. M. Coyle and M. Harrington. Hyde, Hennings, Thulin, Westbrook & Watson, 10 South LaSalle street, are correspondents.

**Haas Motor Boat Tours**, Alexandria Bay, N. Y., has increased its capital from \$20,000 to \$50,000 and changed its name to Combined Thousand Island Boat Tours.

**Atlantic Lighterage Corp.**, New York, has increased capital from \$600,000 to \$850,000.

**National Chartering Corp.**, New York, has been incorporated with 1000 shares no par value to conduct a navigation business. A. M. Grill, 115 Broadway, New York, is attorney.

**Canadian National Steamships**, recently incorporated, has asked bids for the construction of five ships for West Indies trade service. The appropriation available is \$10,000,000.

**Cosmos Steamship Co.**, New York, has been incorporated with \$25,000 capital by S. B. Axtell, 11 Moore street, New York.

**Meseck Towing Lines**, New York, has been incorporated with 200 shares no par value by Bonyng & Barker, 27 William street.

**Huron Transportation Co.** has given contract to Great Lakes Engineering Co., Detroit, for a boat, keel for which has been laid at River Rouge plant.

**L. & L. Canal Line**, New York, has been incorporated to operate barges, with \$25,000 capital, by Macklin, Brown, Lenahan & Speer, 44 Beaver street, New York.

**Pneumatic Boat Corp. Inc.**, Newark, N. J., has been incorporated with \$10,000 capital, by Schnitzler, Thompson & Dayton, New York.

**Dock Board**, Lake Charles, La., votes on \$500,000 bonds for increasing facilities at port.

**Louisville & Nashville Railroad Co.**, Louisville, Ky., will install two gravity discharge elevators, supported on steel towers, 110 feet high above wharf floor level, on the Louisville & Nashville Muscogee wharf.

**Cleveland & Canada Navigation Co.**, Mentor O., has been incorporated with 500 shares no par value by Charles A. Arter, Charles Follett and Walker H. Nye.

**Alamo Steamship Co.**, Jersey City, N. J., has been incorporated with 100,000 shares pre-

ferred, 15,000, no par value. Corporation Trust Co. is attorney.

**Detroit Shipbuilding Co.**, Detroit, has increased its capital from \$1,450,000 to \$800,000.

**Ulsar Davis, Renaselaer**, N. Y., has been incorporated with \$200,000 capital. T. F. McDermott, 467 Broadway, Albany, N. Y., is attorney.

**Fort Orange Stevedore Corp.**, Albany, N. Y., has been incorporated with \$50,000 capital, by J. M. Hefferman, S. Ablett and H. E. Marston. O'Connell & Aronowitz, Albany, are attorneys.

**Amsterdam Fish Co.**, Amsterdam, N. Y., has been incorporated with \$25,000 capital, to build boats, by F. M. and N. G. Brodie and J. Siegle. A. D. Strandburg is attorney.

**Gravel Motorship Corp.**, Buffalo, has been incorporated with \$20,000 capital, by B. F. Milson, B. Rumsey and J. J. Pendergast.

**Robins Dry Dock & Repair Co.**, 25 Broadway, New York, has awarded a contract for a boiler and plate shop 63 x 110 feet, at its Brooklyn yard, to the Tilt-Hargan Co.

**Steam tug JOSEPH J. O'BRIEN**, Port Washington, N. Y., has been incorporated with 100 shares common stock no par value by Foley & Martin, 64 Wall street, New York.

**Steam tug EVELYN R. BAKER** has been incorporated with 100 shares no par value by Foley & Martin, 64 Wall street, New York.

**Hudson River Shipyards Corp.**, Nyack, N. Y., has been incorporated with \$200,000 capital by Baebler, Fackenthal & Giddings, 120 Broadway, New York.